



RESIDENCE CASEMENTS • CASEMENT DOORS • PIVOTED WINDOWS  
ARCHITECTURAL PROJECTED WINDOWS • BASEMENT WINDOWS  
CONTINUOUS WINDOWS • COMMERCIAL PROJECTED WINDOWS  
INDUSTRIAL DOORS • MECHANICAL OPERATORS



## CECO STEEL PRODUCTS CORPORATION

Formerly CONCRETE ENGINEERING COMPANY, INC.

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This handbook deals specifically with Ceco Steel Windows, Doors and Mechanical Operators. The Ceco organization also offers to the construction industry the complete line of related products listed at the bottom of the page.

# A COMPLETE LINE OF QUALITY PRODUCTS

The Ceco standards of rigid inspection and fine quality materials stand behind every one of these products. For 27 years the Ceco organization has carried on important architectural and engineering work, manufacturing materials which have been used in some of America's finest structures. Ceco's experienced engineers have maintained an excellent record for correct engineering.

When you specify Ceco, you know you have specified the best!

## Other Ceco Products:

Metal Frame Screens



Concrete Reinforcing  
Bars



Metal Weatherstrips



Welded and Triangle  
Fabric



Metal Lath and  
Accessories



Meyer Steelforms



Adjustable Shores and  
Column Clamps

Ceco Steel Joists

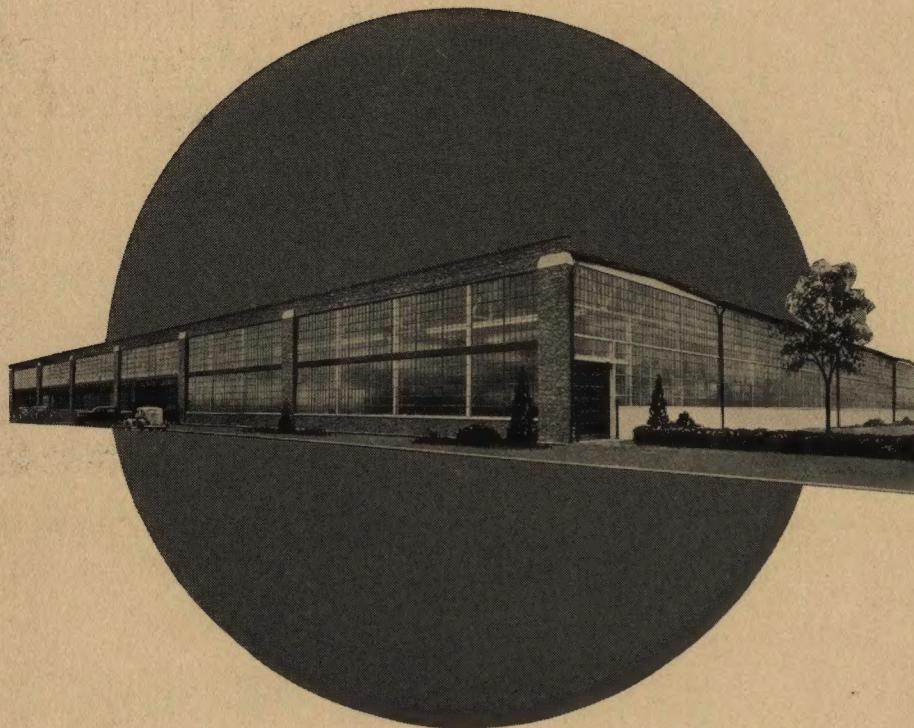
# CECO STEEL PRODUCTS CORPORATION

Manufacturing Division Headquarters

5701 West 26th St., Chicago, Ill.

GENERAL OFFICES  
OMAHA, NEBRASKA

# GOOD SERVICE



The Ceco organization fully appreciates the importance of prompt delivery of materials to any project. For that reason, Ceco manufacturing facilities have been constantly expanded to assure adequate service — the latest being the new Chicago manufacturing division plant shown here.

Branch warehouses and sales offices are strategically located throughout the United States for your convenience. Ceco engineers, backed by years of practical experience are always ready to help you.

Depend upon Ceco's good service to maintain your construction schedules.

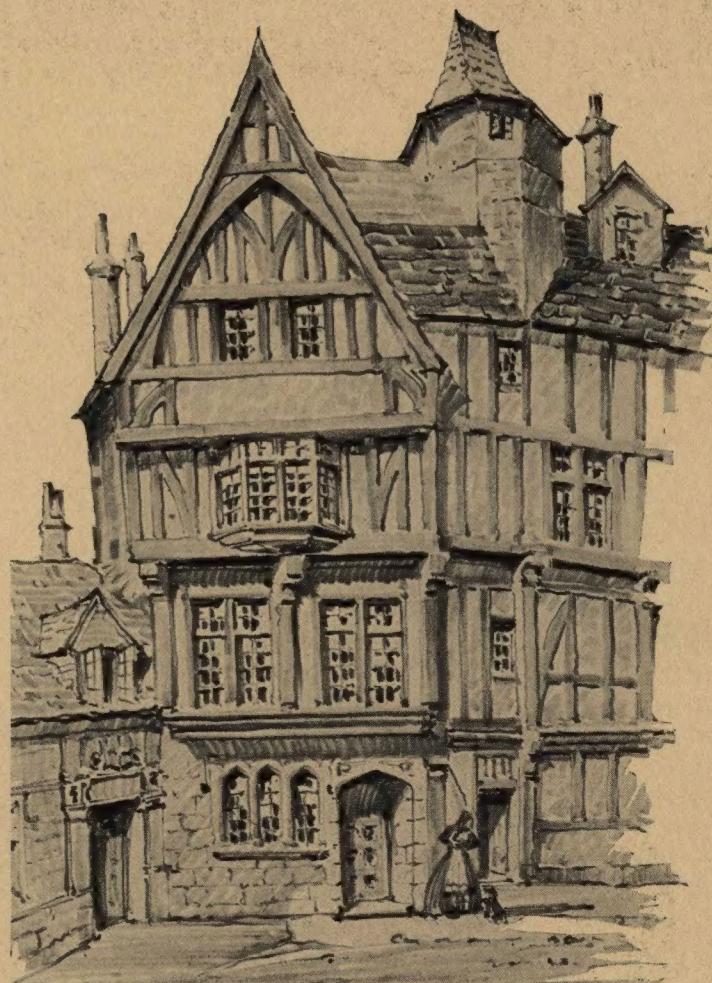
## Sales Offices and Warehouses

Birmingham ★ Chicago ★ Cincinnati ★ Dallas ★ Des Moines ★ Detroit ★ Houston ★ Indianapolis  
Jersey City ★ Kansas City ★ Los Angeles ★ Milwaukee ★ Minneapolis ★ New Orleans  
Oklahoma City ★ Omaha ★ Peoria ★ San Antonio ★ San Francisco ★ St. Louis

# WINDOWS OF STEEL

The windows in the beautiful manors of Old England were simply "eyes" of leaded glass set in frames of metal. From these, America has evolved the steel window of today—a skillful combination of architectural harmony and practical utility for better lighting and longer service. The design and construction of Ceco steel windows and doors have not been restricted. This Manual will show that every type of building, from the small home to the largest institution or commercial building project, may be equipped with Ceco Steel Windows and Doors in complete harmony with its architectural character, regardless of the material used in its construction.

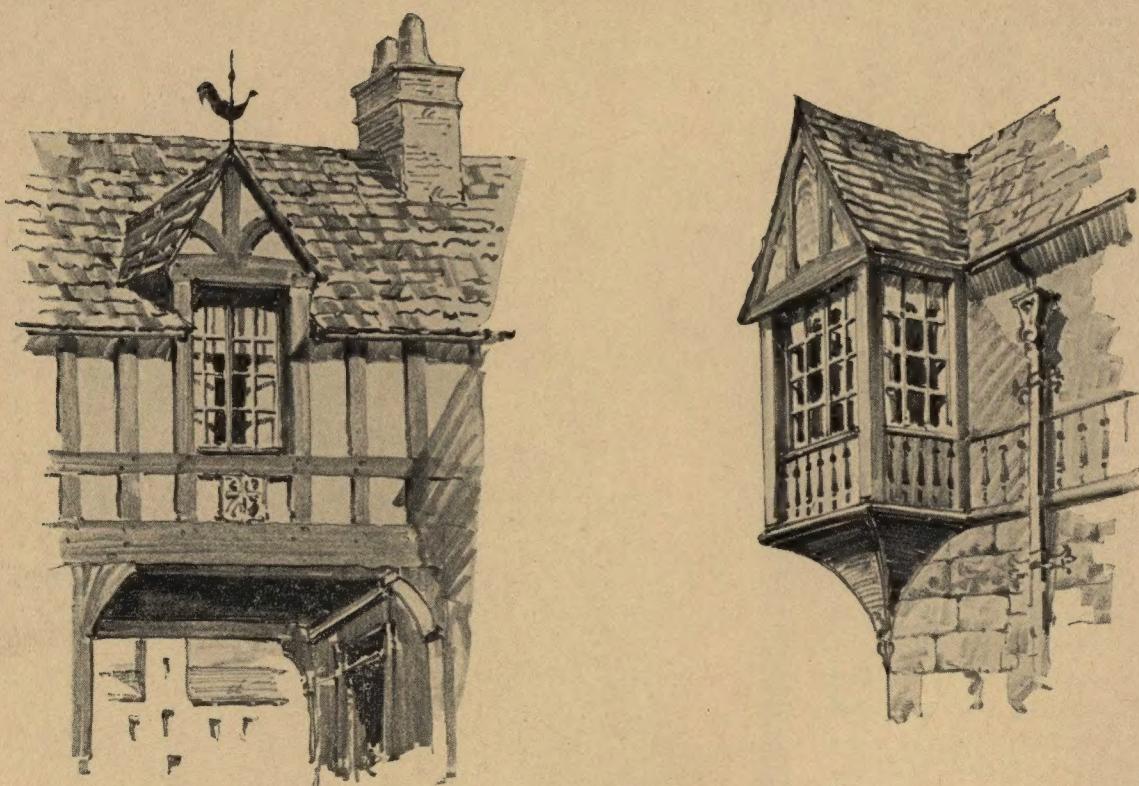
Architects and Builders will appreciate the durability and service found in Ceco Steel Windows and Doors, as well as in their economy, which is always an important consideration.



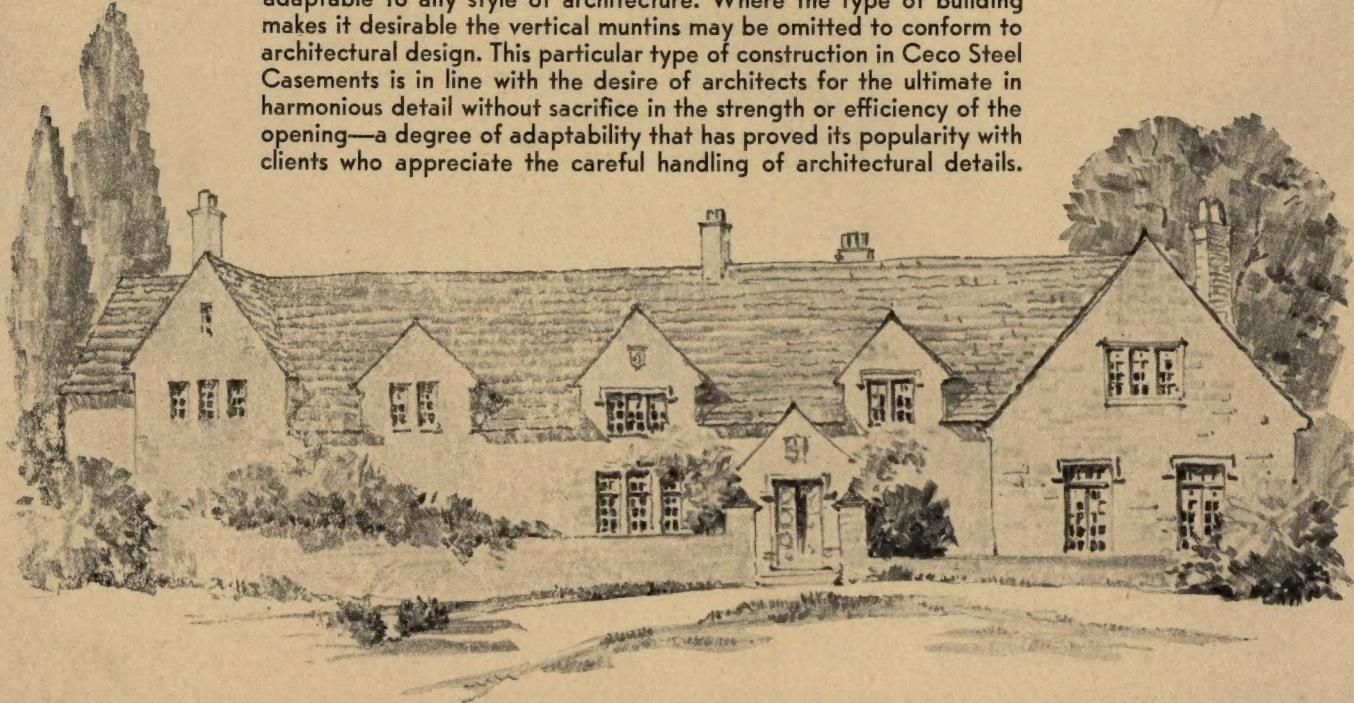
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# CECO STEEL PRODUCTS CORPORATION



Ceco Steel Casements are so designed that they are harmoniously adaptable to any style of architecture. Where the type of building makes it desirable the vertical muntins may be omitted to conform to architectural design. This particular type of construction in Ceco Steel Casements is in line with the desire of architects for the ultimate in harmonious detail without sacrifice in the strength or efficiency of the opening—a degree of adaptability that has proved its popularity with clients who appreciate the careful handling of architectural details.

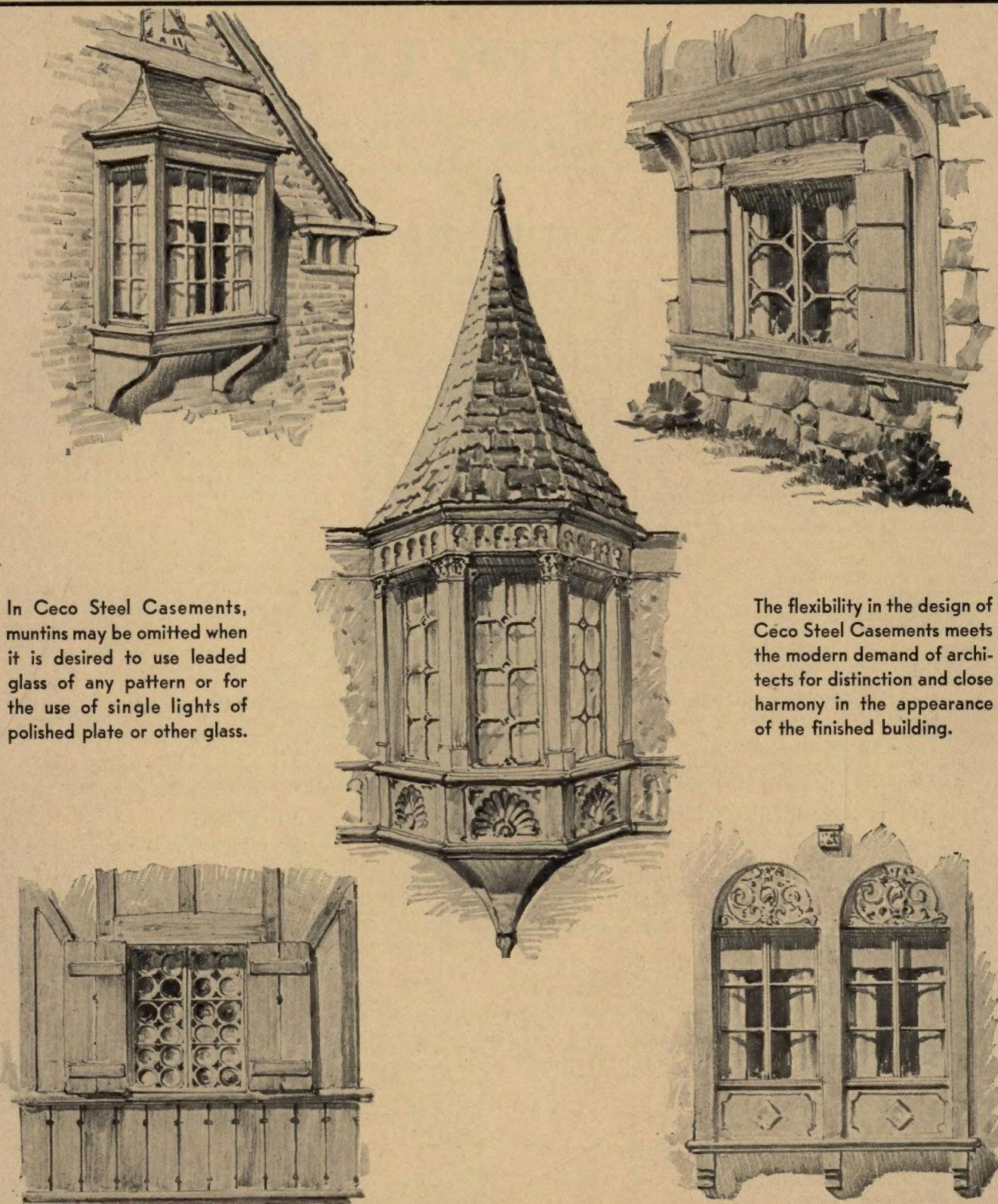


*Ceco*

**RESIDENCE CASEMENTS**  
WINDOW TREATMENTS

PLATE  
I

# CECO STEEL PRODUCTS CORPORATION



In Ceco Steel Casements, muntins may be omitted when it is desired to use leaded glass of any pattern or for the use of single lights of polished plate or other glass.

The flexibility in the design of Ceco Steel Casements meets the modern demand of architects for distinction and close harmony in the appearance of the finished building.

*Ceco*

**RESIDENCE CASEMENTS**  
WINDOW TREATMENTS

PLATE  
2

# CECO STEEL PRODUCTS CORPORATION

## RESIDENCE TYPE CASEMENTS

Flexibility in the design of Ceco Steel Casements meets the modern demand of architects for distinction and close harmony in the appearance of the finished building.

### Specifications

#### GENERAL

All windows shall be the Residence Type Casements as manufactured by the Ceco Steel Products Corporation, of Chicago, Illinois, or approved equal, as per written approval of the architect and shall be of sizes and types as shown on architect's drawings.

#### MATERIAL

All sections shall be especially designed, hot-rolled, new billet steel.

All frame and ventilator members shall be special Z shaped sections and shall be of 1.1/16" depth from front to back and have a combined weight of not less than 2 lbs. per lineal foot, exclusive of fins or anchors.

Ventilator members to be rolled with a baffle providing a continuous two point weathering contact, with frame members, through out the entire perimeter of the ventilator without the aid of loose or applied linings.

Corners of frame and ventilator members shall be mitred and electrically butt welded, with exposed surfaces at welds ground to a smooth finish.

All muntins shall be especially rolled T's with 5/8" face and a depth of 7/8" and shall be continuous between rails and stiles.

Head Drips shall be especially formed members.

#### CONSTRUCTION

At muntin intersections there shall be a mechanical joint rigidly interlocking the muntins flush with inside face.

A continuous drip shall be provided at transom bar and at head of all openings where the swing leaves extend the full height of opening.

Horizontal and vertical mullions provided where necessary, to be of hot-rolled T shape members.

Side hinged ventilators to open out shall be hung on extension cleaning hinges of mild rolled steel sections. One hinge leaf securely welded to frame, the other leaf riveted to ventilator. Transom ventilator shall be hinged at top to open out and shall be equipped with close-up hinges. Sill ventilators shall be bottom hinged to open in and shall be equipped with butt hinges and friction slides.

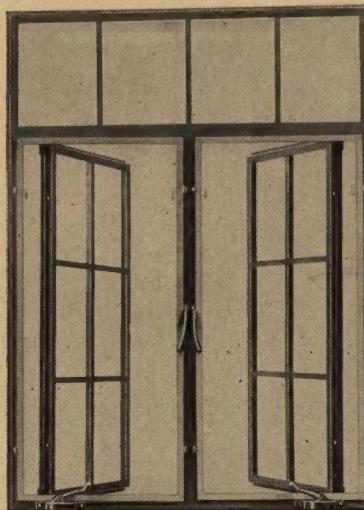
All casements to be provided with open holes in both jambs near head for standard shade and drapery brackets. (Brackets not furnished by Ceco Steel Products Corporation.)

#### HARDWARE

All unattached hardware shall be packed and shipped separately to prevent damage and shall be applied after erection.

Hardware shall be Simplex type or Roto type. (Architect to specify which type is required.)

Simplex (Non-operator) Type—Hardware for side-hinged, transom and sill ventilators shall be water-rolled bronze attractively and accurately designed for operation required. (Polished finish may be obtained at a slight extra cost.) Cam handles shall be furnished for sill ventilators, stay-bars for the transom ventilators. Strike plates



where required shall be bronze with beveled edges.

Roto (Underscreen operator) Type—Hardware shall control the ventilator independently of the screen. Roto hardware shall securely hold the ventilator in open position.

For side-hinged ventilators water-rolled bronze cam action locking handles shall be furnished. The Roto operator shall be die cast with bronze lacquer finish. Operator arms shall be cadmium plated (locking handle keeper and channel guide for operator shall be attached in shop).

For transom vents hardware shall be water-rolled bronze notched stay-bar; for sill vents water-rolled bronze cam locking handle.

All hardware shall be attractively and accurately designed for operation required (polished finish may be obtained at slight extra cost).

#### ERCTION

Casements shall be set plumb and true, and mastic applied to provide weather-tight union between building construction, mullions and casement frames. (Window manufacturer to provide 1 lb. of mastic for each 10' 0" of casement perimeter.)

Locking handle and Rotary operator shall be shipped unattached, to be applied after erection in accordance with manufacturer's directions.

#### PAINTING

All casements shall receive one coat of gray mineral paint by the manufacturer before shipment.

(Note: Include in the painting specifications that all windows should be given one additional coat after erection, but before glazing.)

(Note: Windows erected by the Ceco Steel Products Corporation will be field painted by them if specified.)

#### GLASS AND GLAZING

(Note: Glass and glazing should be furnished under glass and glazing specifications and not as part of window specifications.)

All windows shall be glazed from the outside, all glass being set in a bed of putty and secured by glazing clips furnished by the window manufacturer. Face putty shall be applied in a neat, clean-cut, smooth manner.

Putty shall be a high grade of steel window putty.

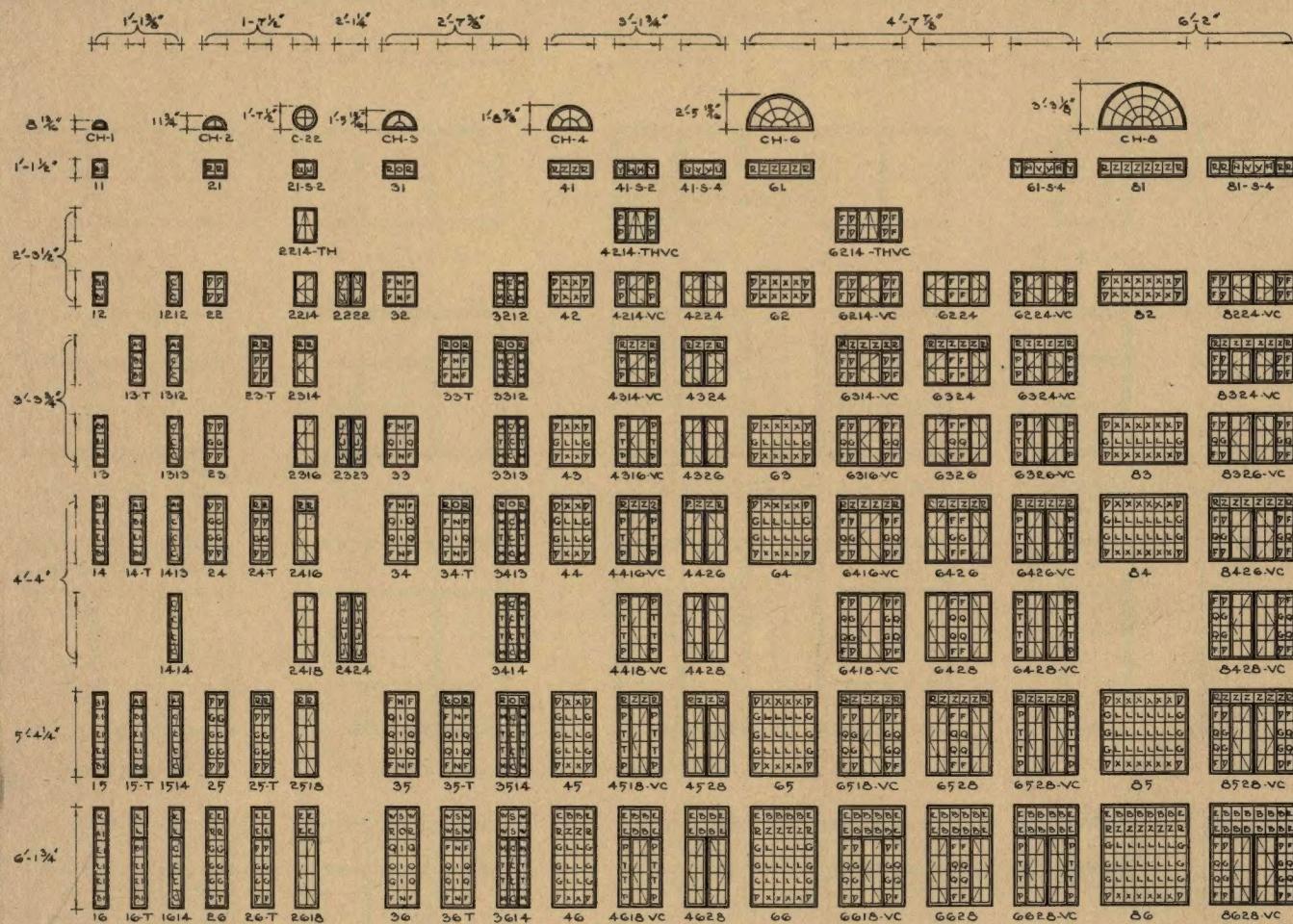
(Note: Specify types of glass. Single strength glass is not recommended.)

#### SCREENS

All screens shall be especially designed for use with Residence Casements as manufactured by the Ceco Steel Products Corporation.

Screens for Simplex casements shall be either the hinged or "wicket" type. Screens for the Roto casement shall be the flat fixed type. All screens shall be easily attached or removed from the inside. Screens for open-in ventilators shall be flat type attached on the outside of frame and shall be readily attached or removed.

# CECO STEEL PRODUCTS CORPORATION



Dimensions shown are opening dimensions and are  $\frac{1}{4}$ " larger than window sizes.

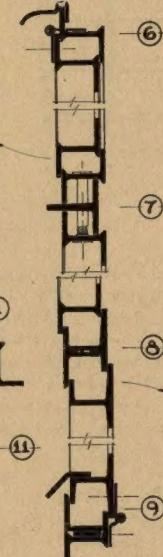
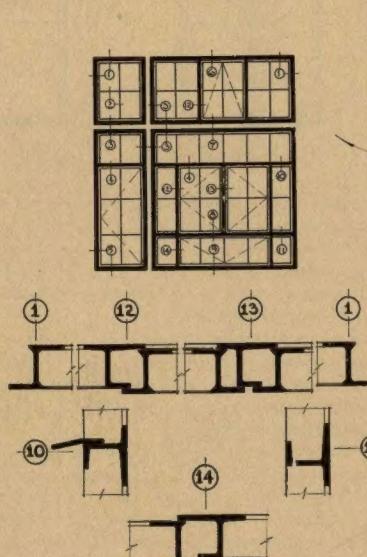
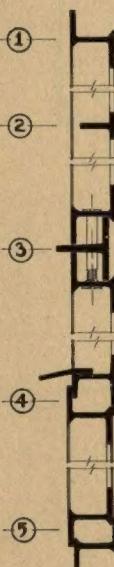
Always specify whether ventilators are right or left hand.

Where mullions are used, to obtain opening dimensions, add together opening dimensions of the specific windows to be combined. Nothing need be added for steel mullions.

Handing of casements is determined by location of hinges. Hinged at right is a right hand casement. Hinged at left is a left hand casement. All casements are viewed from the outside.

All casements are set in mastic cement.

All ventilators swing outward except those marked "S".



— SYMBOLS —		
SIDE HINGE	VENT CENTER	TOP HINGE
NC	TH	CH
VENT HINGE	TOP HINGE	CURVED HEAD
S	T	JH
TI		TRANSOM

## GLASS SIZES

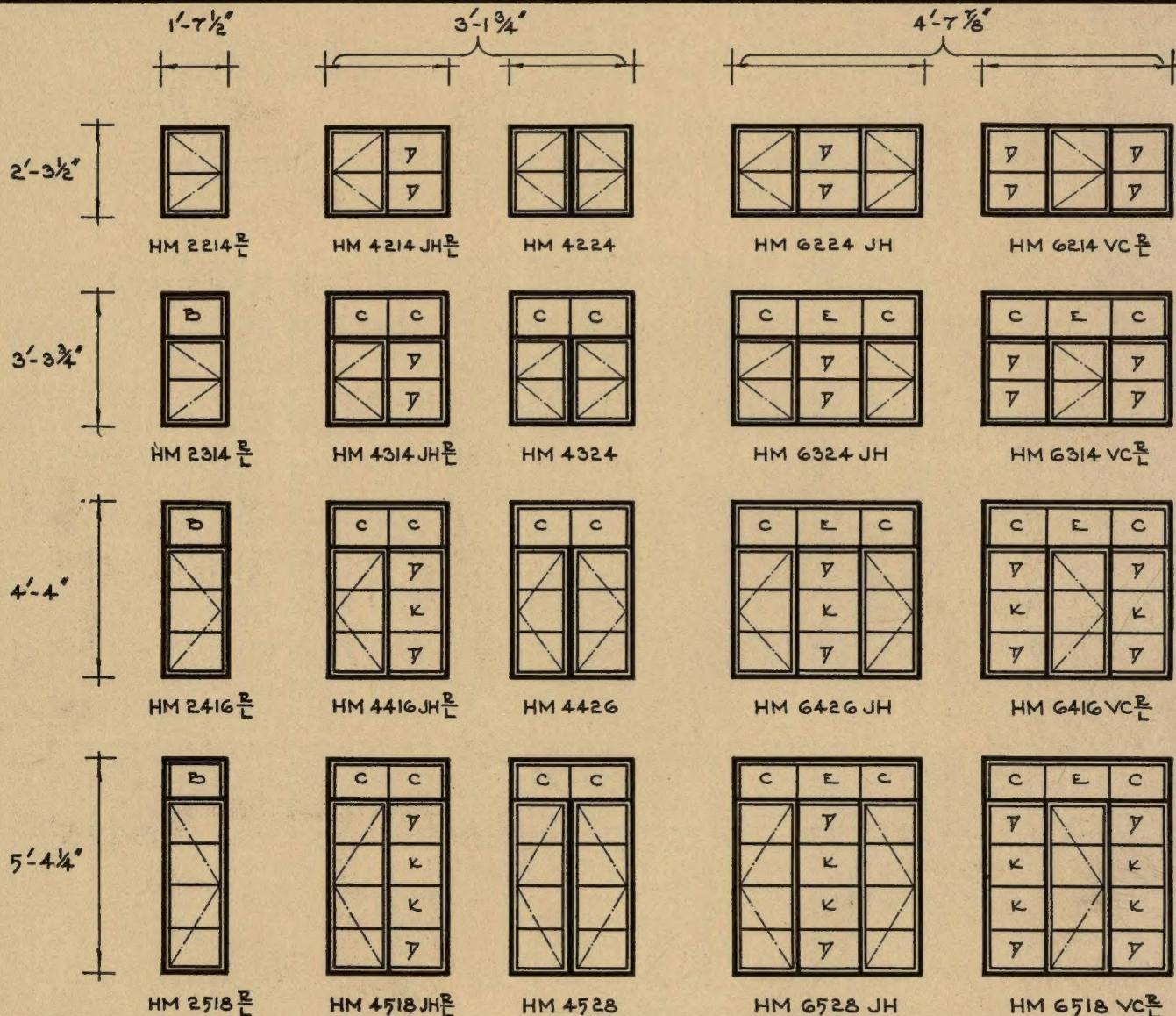
A	$7\frac{7}{8} \times 11\frac{7}{8}$	P	$8\frac{3}{8} \times 12\frac{9}{16}$
B	$8\frac{1}{8} \times 10\frac{3}{8}$	Q	$8\frac{1}{2} \times 11\frac{7}{8}$
C	$10 \times 11\frac{7}{8}$	R	$8\frac{1}{2} \times 11\frac{1}{2}$
D	$8\frac{9}{16} \times 12\frac{9}{16}$	S	$11\frac{5}{8} \times 10\frac{3}{8}$
E	$8\frac{1}{2} \times 10\frac{3}{8}$	T	$8\frac{1}{4} \times 11\frac{7}{8}$
F	$8\frac{1}{2} \times 12\frac{9}{16}$	U	$7 \times 8\frac{3}{8}$
G	$8\frac{9}{16} \times 11\frac{7}{8}$	V	$8\frac{1}{16} \times 8\frac{3}{8}$
H	$7\frac{7}{8} \times 8\frac{3}{8}$	W	$8\frac{1}{2} \times 10\frac{3}{8}$
I	$11\frac{5}{8} \times 11\frac{7}{8}$	X	$8\frac{1}{16} \times 12\frac{9}{16}$
J	$9\frac{7}{8} \times 11\frac{7}{8}$	Y	$8\frac{3}{8} \times 11\frac{1}{2}$
K	$11\frac{7}{8} \times 10\frac{3}{8}$	Z	$8\frac{5}{8} \times 11\frac{1}{2}$
L	$8\frac{1}{8} \times 11\frac{7}{8}$		
M	$8\frac{1}{4} \times 12\frac{9}{16}$	A-I	$11\frac{3}{8} \times 11\frac{1}{2}$
N	$11\frac{5}{8} \times 12\frac{9}{16}$	B-I	$11\frac{3}{8} \times 12\frac{9}{16}$
O	$11\frac{5}{8} \times 11\frac{1}{2}$	E-I	$11\frac{3}{8} \times 11\frac{1}{2}$

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**RESIDENCE CASEMENTS**  
STANDARD TYPES AND SECTIONAL DETAILS

PLATE  
3

# CECO STEEL PRODUCTS CORPORATION



## - SYMBOLS -

	SIDE HINGE
	VC VENT CENTER
	JH JAMB HINGE
	RIGHT OR LEFT

## GLASS SIZES

ALL GLASS FOR VENTS  
16" x 11 1/8"

B	17 3/8" x 11 1/2"
C	17 1/2" x 11 1/2"
D	17 1/4" x 12 1/8"
E	17 5/8" x 11 1/2"
K	17 1/4" x 11 1/8"

NOTES: Dimensions shown are opening dimensions and are  $\frac{1}{4}$ " larger than window sizes.  
Where mullions are used, to obtain opening dimensions, add together opening dimensions of the specific windows to be combined. Nothing need be added for steel mullions.

Always specify whether ventilators are right or left hand. Handing of casements is determined by location of hinges. Hinged at right is right hand casement. Hinged at left is left hand casement. All casements are viewed from the outside.

All casements are set in mastic cement.

Muntins may be omitted at no additional cost.

Economy Casement Windows meet the demand for low cost steel construction without sacrifice of quality in materials or workmanship. Low initial cost and upkeep give them preference over ordinary sliding sash among Development Builders.

By eliminating the Worm and Gear Operator and Flat Type Screen and the Vertical Muntin Bar, low cost has been achieved with no loss in sturdiness or efficiency of operation. Use of fewer glass lights effects lower glazing costs although glass area is increased. Economy Casement Sections are of the same design and quality as those used in all Ceco Residence Casements.

Locking Handles on Economy Casements, of lacquer-finished solid bronze are sturdy and hold ventilators tightly against frame for positive weathering. Extension-type friction hinges hold ventilators in desired positions for washing outside glass surfaces from inside the room.

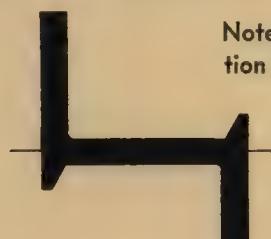
Ceco

**CECONOMY CASEMENTS**  
STANDARD TYPES

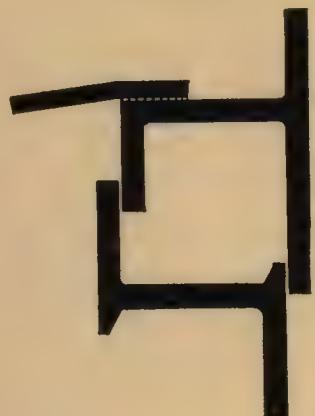
PLATE  
4

# CECO STEEL PRODUCTS CORPORATION

Note: See Plate No. 3 for combination of units and for type and sizes.



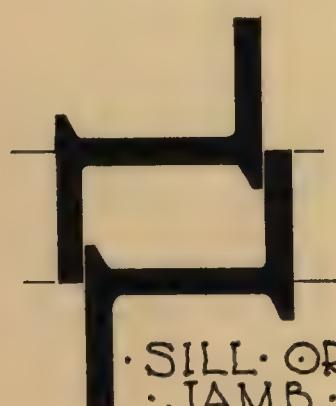
• HEAD • OR •  
• JAMB •



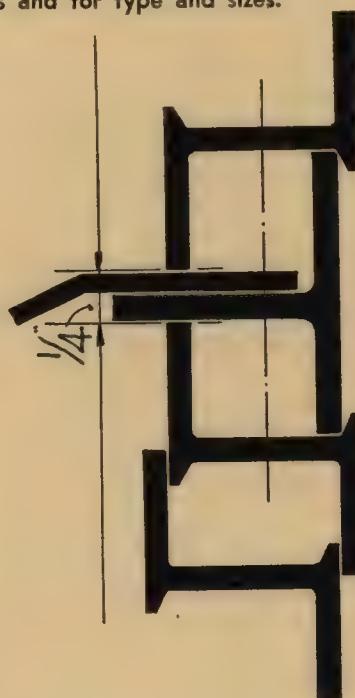
• TRANSOM •



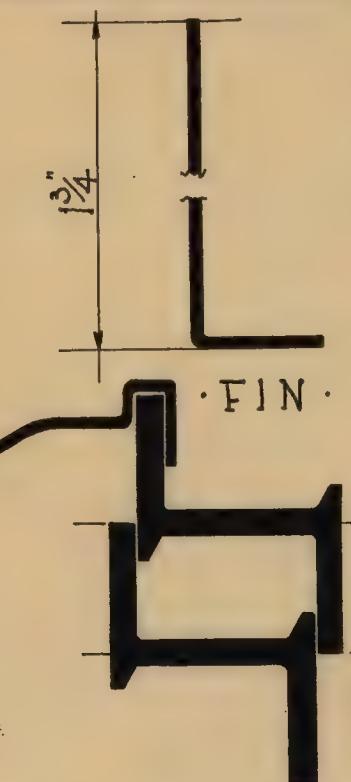
• MUNTIN •



• SILL • OR •  
• JAMB •



• TRANSMON - BAR •  
• OR • MULLION •

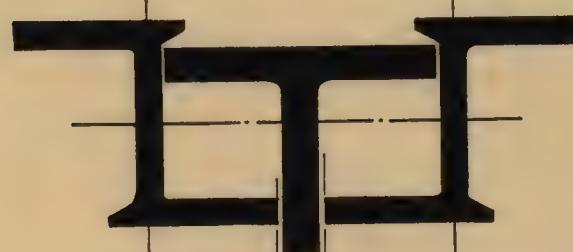


• FIN •

• HEAD •



• MEETING - RAIL •



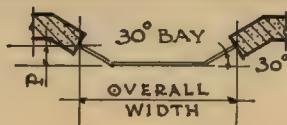
• MULLION •

Ceco

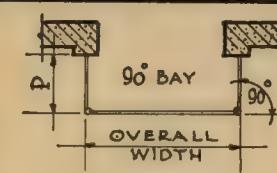
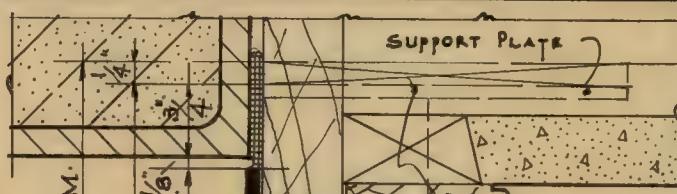
**RESIDENCE CASEMENTS**  
FULL SIZE SECTIONS

PLATE  
5

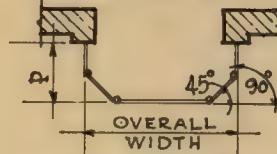
# CECO STEEL PRODUCTS CORPORATION



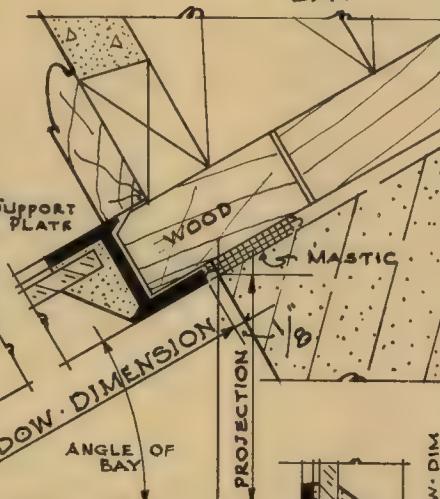
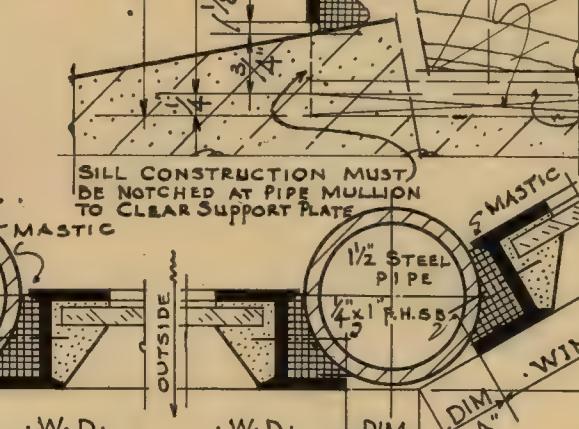
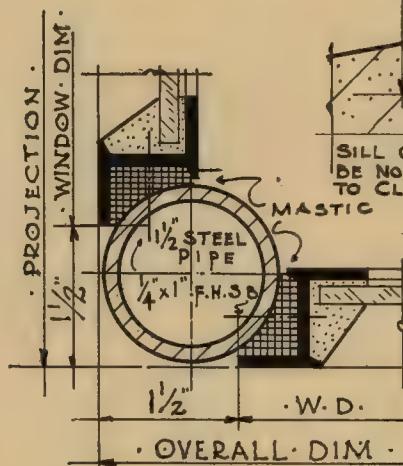
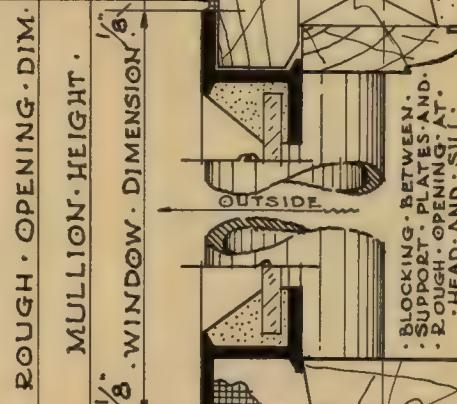
## SPLAYED BAY'S.



## SQUARE BAY.

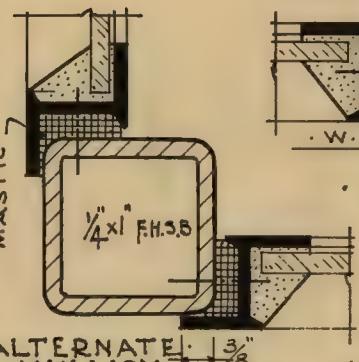


## SQUARE SPLAYED BAY.



## SQUARE BAY.

NOTE  
PIPE MULLIONS FURNISHED  
BY CECO STEEL Prod Corp  
NOT TO BE USED  
AS SUPPORT  
MEMBER



## INTERMEDIATE MULLION.

## ALTERNATE MULLION.

WINDOW DIMENSION 3/8" MASTIC ALTERNATE MULLION.

ANGLE OF BAY	LIGHTS IN RETURN	OVERALL WIDTH			PROJECTION	DIMENSION A'
		4	6	8		
30°	1	5' 3 1/16"	6' 9 3/16"	8' 3 5/16"	6 1/2"	3 1/4"
	2	6' 1 1/2"	7' 7 3/4"	9' 1 1/8"	10"	4"
45°	1	4' 11"	6' 5 1/8"	7' 11 1/4"	9 1/2"	7 1/8"
	2	5' 7 3/4"	7' 1 1/8"	8' 8"	1' 2 1/4"	1 1/8"
60°	1	4' 5 5/8"	5' 11 3/4"	7' 5 7/8"	1' 0 1/4"	1"
	2	4' 11 1/4"	6' 5 1/8"	8' 0"	1' 5 5/8"	1 5/8"
90°	1	3' 4 1/2"	4' 10 5/8"	6' 4 3/4"	1' 2 5/8"	1 1/2"
	2	3' 4 1/2"	4' 10 5/8"	6' 4 3/4"	1' 8 3/4"	1 1/2"
SQUARE SPLAYED	1	5' 0 1/2"	6' 6 3/8"	8' 0 1/2"	2' 0 1/2"	7/8"
	2	5' 9"	7' 3 1/8"	8' 9 1/2"	2' 11"	1 1/2"

## BAY TABLE.

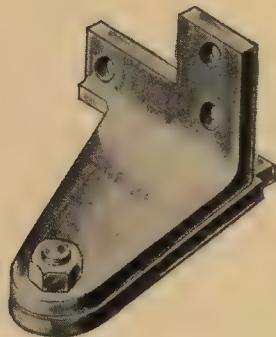
BY OTHER'S  
3/8" WINDOW DIM.

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**RESIDENCE CASEMENTS**  
PIPE MULLIONS, CORNERS, TYPICAL BAYS

PLATE  
6

# CECO STEEL PRODUCTS CORPORATION



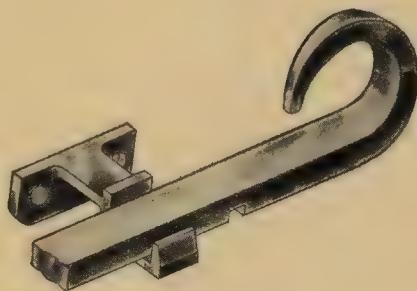
NO. 8000

## NOTES

Handles Nos. 102, 121 and 150 Worm Gear Operator No. 210 and Transom Stay No. 510 are furnished in solid bronze, statuary finish. Handles Nos. 7102, 7121 and 7150 and Transom Stay No. 7510 are furnished as standard in bronze water-rolled finish. Operator No. 7210 is furnished as standard in bronze lacquer finish. Extension Hinge No. 8000 is made of steel.



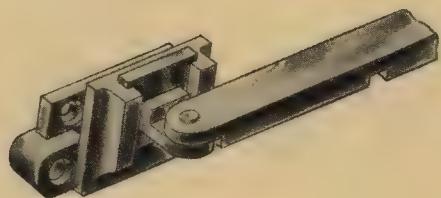
NO. 150  
NO. 7150



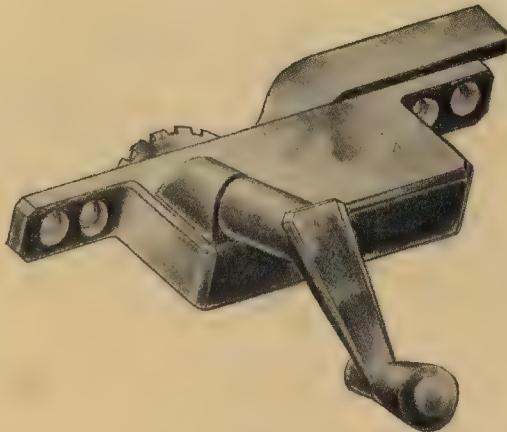
NO. 510  
NO. 7510



NO. 121  
NO. 7121



NO. 102  
NO. 7102



NO. 210  
NO. 7210

Ceco

RESIDENCE CASEMENTS  
HARDWARE

PLATE  
E 15

# CECO STEEL PRODUCTS CORPORATION

## A NEW TREATMENT FOR CASEMENT WINDOW HARDWARE



CECO STEEL PRODUCTS CORPORATION is pleased to present a new simple, convenient concealed locking device used with Roto (underscreen operators) Casements, which eliminates the use of locking handles at the meeting rail.

The ventilators are locked in position by an ingenious concealed locking bar which engages with keepers.

The advantages of this arrangement are numerous and a few are as follows:

1. Venetian blinds no longer present a problem in connection with their use on steel casements, as there are no handles to interfere with the operation of the blind.
2. On double vented casements where vents are adjacent to each other, only one screen with uninterrupted screen cloth is required where formerly two screens were furnished. Hence,



considerable saving in material cost is effected and the subsequent saving in storage, handling, etc.

3. In case of winter windows or storm sash, fewer panels are required because of freedom from interference of handles. Therefore, again savings on material and subsequent costs are effected.

This new hardware is a flat sliding bolt lock operating in the frame channel from the sill. Action is positive and installation is simple.

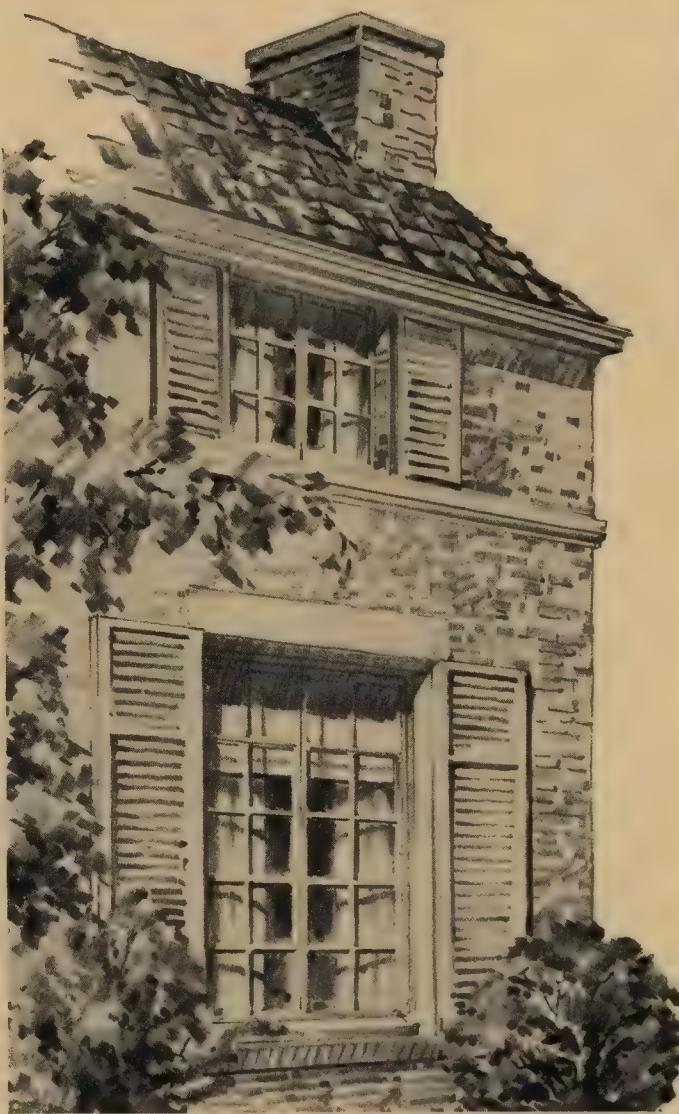
This type of lock replaces the typical locking handles for vents which make screening and blinding inconvenient and expensive. The convenience of this hardware is obvious where stool lines are high and window installations are above normal reach, such as over sinks.

This new hardware may be substituted for the standard locking handle used with Roto Casements at no increased cost, if specified.

Include the following additional paragraph in your specifications for Casements as now shown on page 6 of this catalog, under "Hardware":

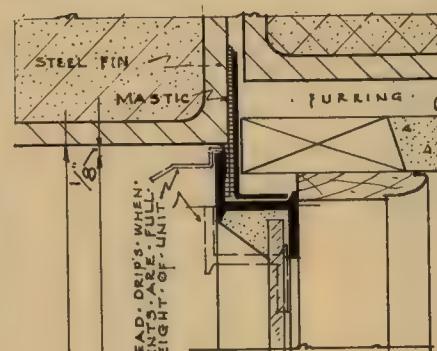
"All double and single ventilators shall be equipped with Ceco No. 7210 Roto Adjuster and Ceco No. 7400 Locking Device to permit the use of single screens for double adjacent ventilators. Locking handles above the lower rail of the window unit will not be permitted."

# CECO STEEL PRODUCTS CORPORATION

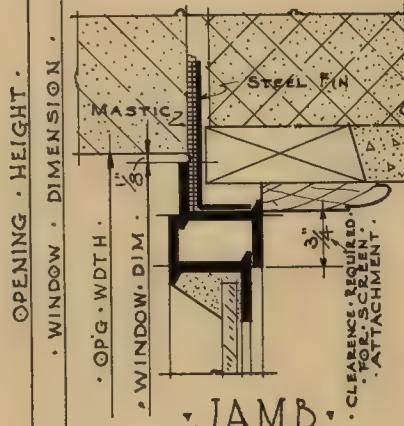


## NOTES

Set all casements in Mastic Cement where they come in contact with building work and Mullions and caulk all casement frames on outside. The opening dimensions are  $\frac{1}{4}$ -inch larger than window sizes. Use opening dimensions for multiple units. Nothing need be added for steel Mullions.

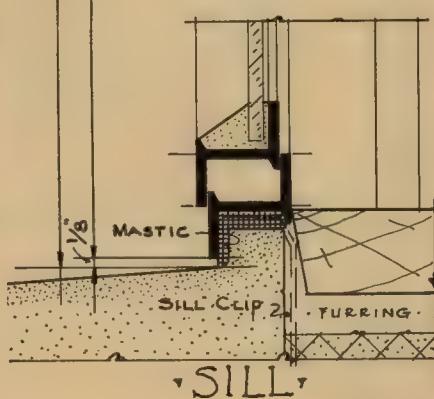


HEAD.



JAMB.

Screen clearance at head  
and sill same as at jamb.



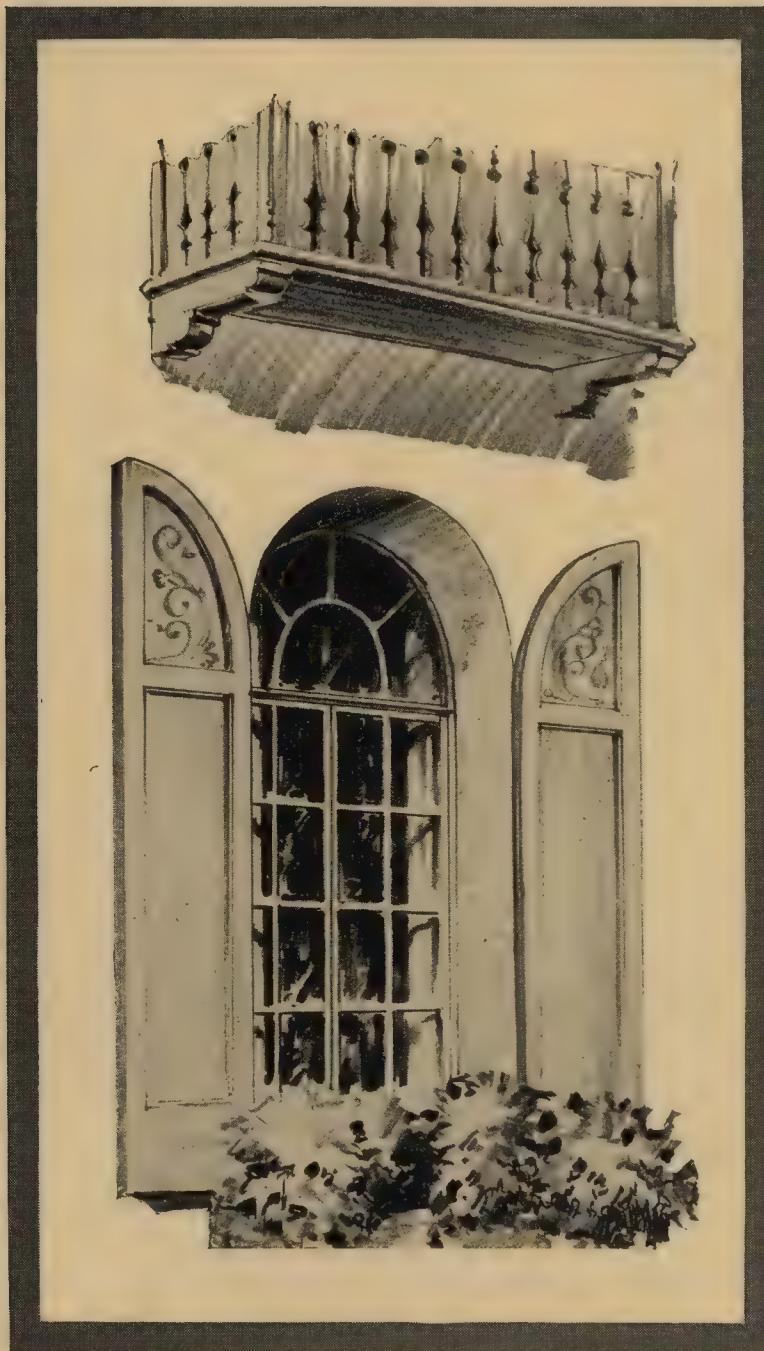
SILL.

Ceco

**RESIDENCE CASEMENTS**  
SOLID BRICK INSTALLATION DETAILS

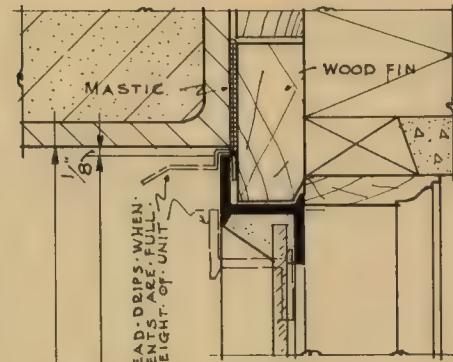
PLATE  
8

# CECO STEEL PRODUCTS CORPORATION

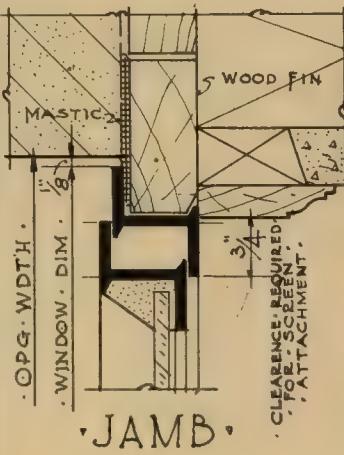


## NOTES

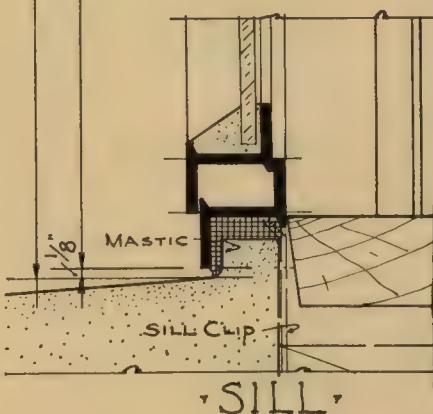
Set all casements in mastic cement where they come in contact with building work and Mullions and caulk all casement frames on outside. The opening dimensions are  $\frac{1}{4}$ " larger than window sizes. Use opening dimensions for multiple units. Nothing need be added for steel Mullions.



OPENING - HEIGHT.  
WINDOW - DIMENSION



Screen clearance at head  
and sill same as at jamb.



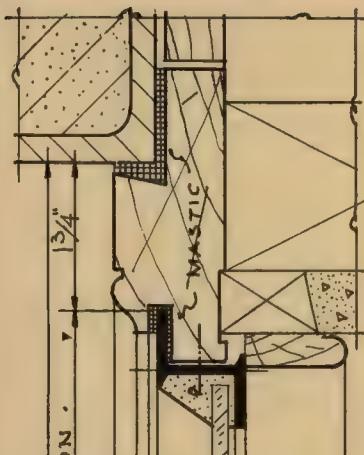
*Ceco*

## RESIDENCE CASEMENTS

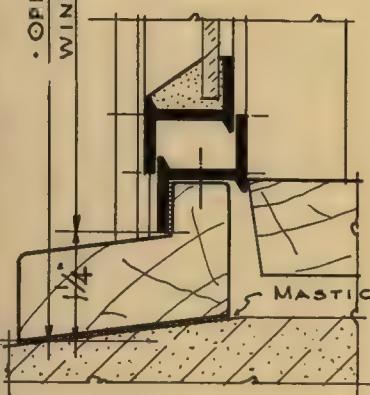
BRICK VENEER INSTALLATION DETAILS

PLATE  
9

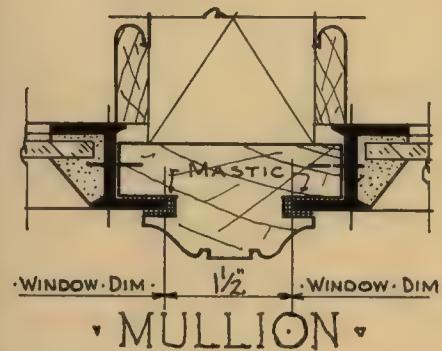
# CECO STEEL PRODUCTS CORPORATION



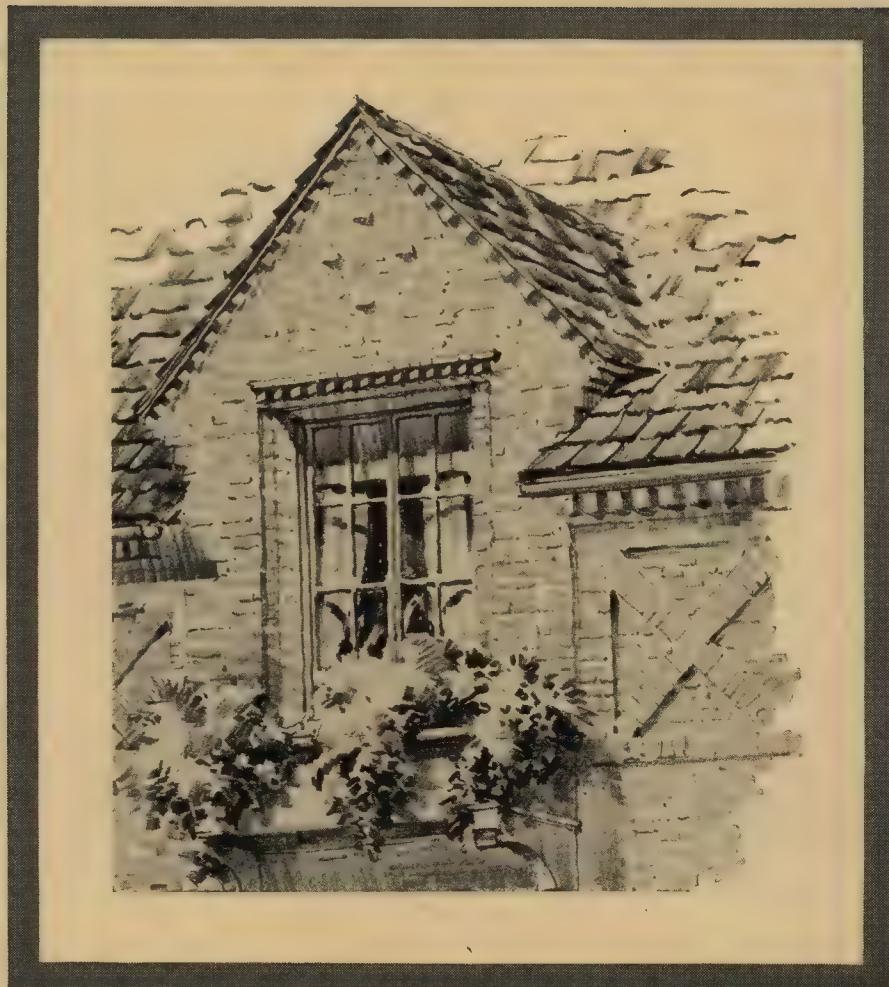
• HEAD •



• SILL •



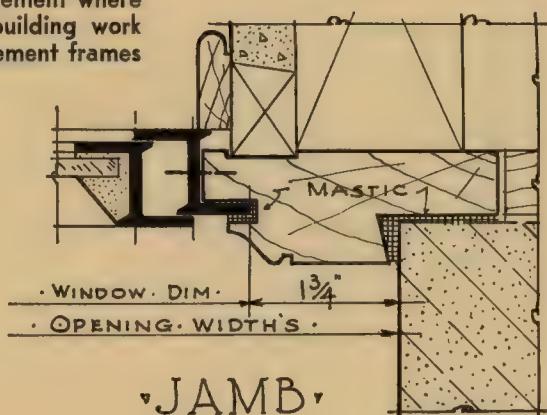
• MULLION •



## NOTES

Set all casements in Mastic Cement where they come in contact with building work and Mullions and caulk all casement frames on outside.

See plates 8 and 9 for  
Screen Clearance.



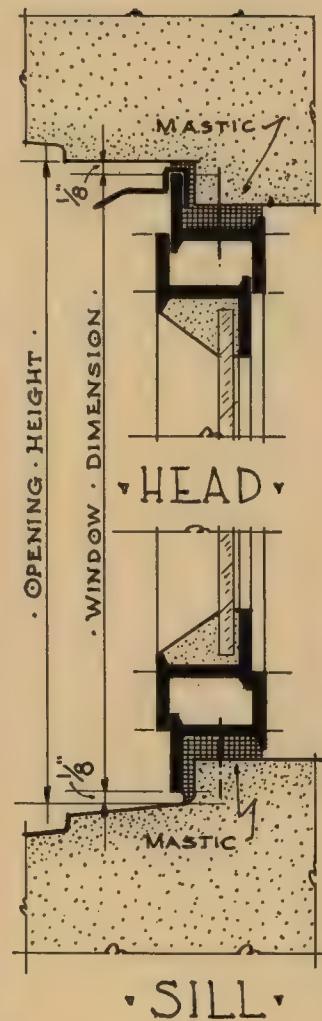
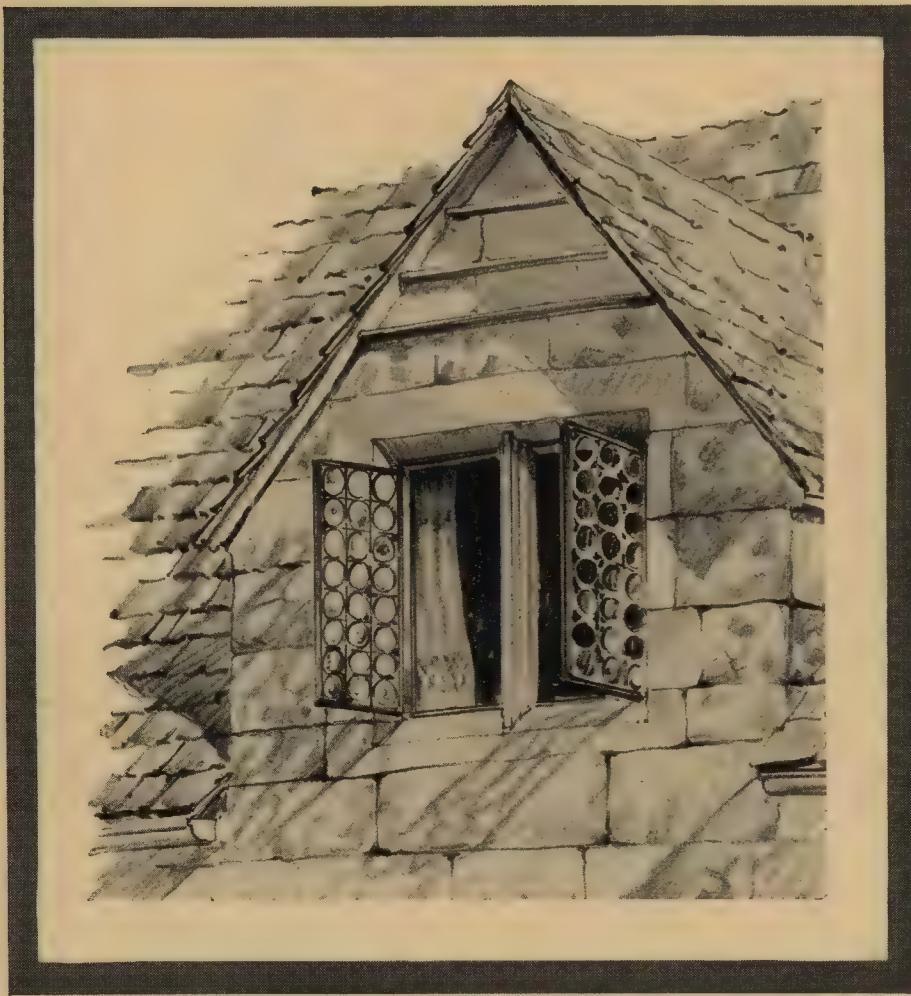
• JAMB •

Ceco

**RESIDENCE CASEMENTS**  
WOOD SURROUND INSTALLATION DETAILS

PLATE  
10

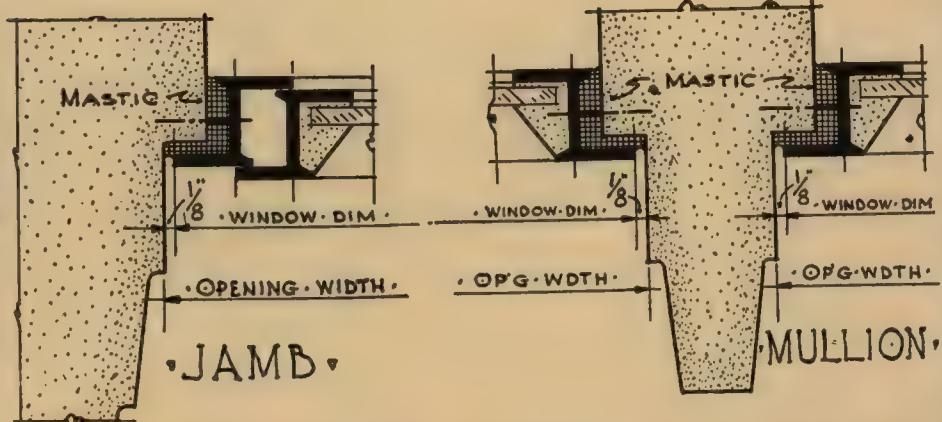
# CECO STEEL PRODUCTS CORPORATION



## NOTES

Set all casements in Mastic Cement where they come in contact with building work and Mullions and caulk all casement frames on outside. The opening dimensions are  $\frac{1}{4}$ " larger than window sizes. Use opening dimensions for multiple units. Nothing need be added for steel Mullions.

See plates 8 and 9 for Screen Clearance.

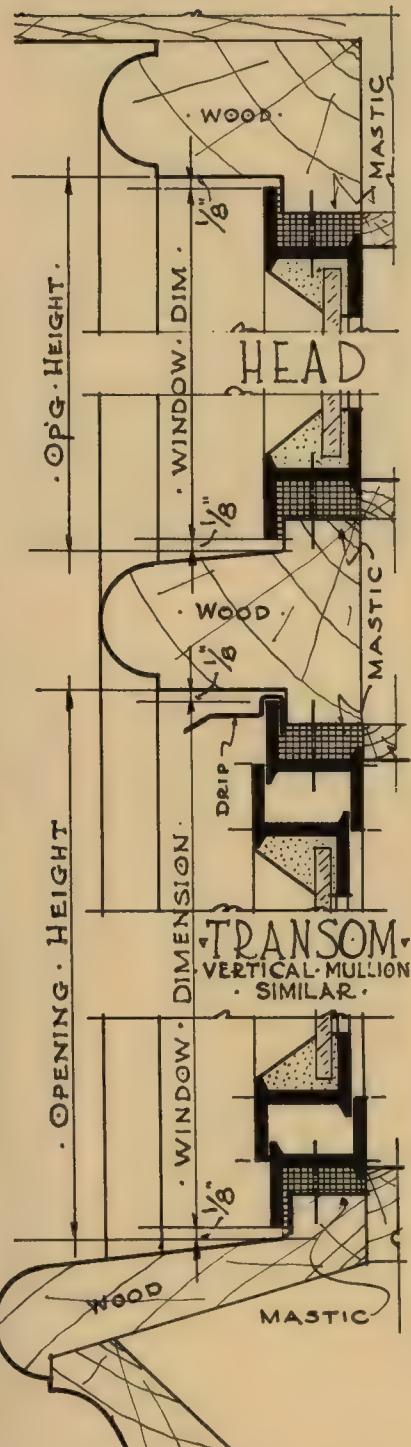


*Ceco*

**RESIDENCE CASEMENTS**  
STONE INSTALLATION DETAILS

PLATE  
11

# CECO STEEL PRODUCTS CORPORATION



## NOTES

Set all casements in Mastic Cement where they come in contact with building work and Mullions and caulk all casement frames on outside. The opening dimensions are  $1/4"$  larger than window sizes. Use opening dimensions for multiple units. Nothing need be added for Steel Mullions.

Ceco

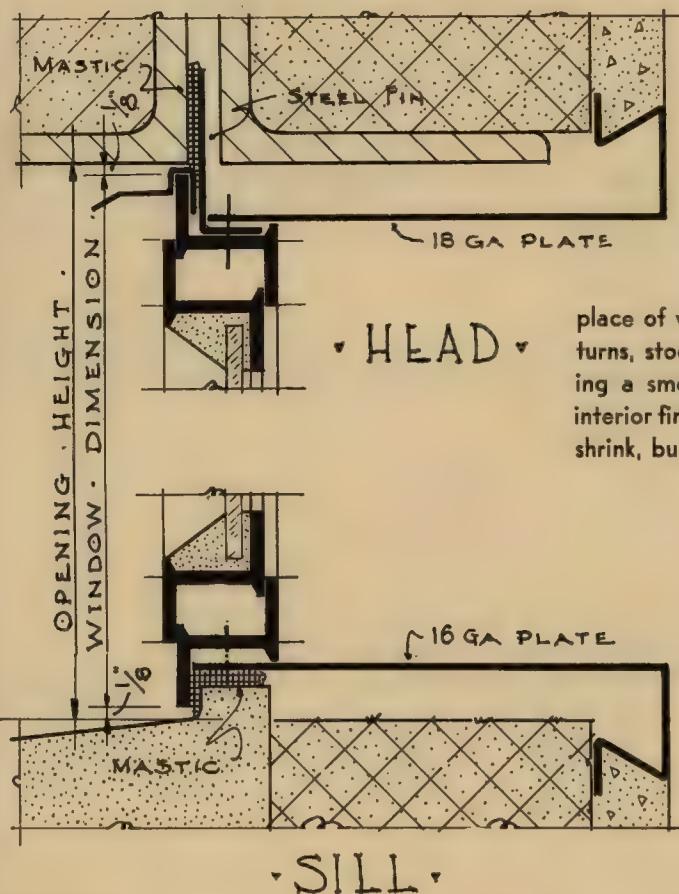
**RESIDENCE CASEMENTS**  
WOOD INSTALLATION DETAILS

PLATE  
12

# CECO STEEL PRODUCTS CORPORATION



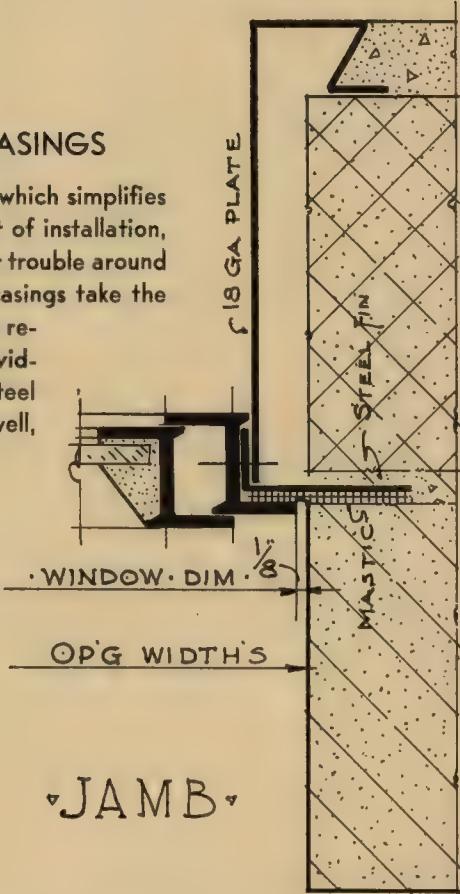
GRANVILLE GARDEN APARTMENTS, CHICAGO  
RISSMAN & HIRSCHFIELD, ARCHITECTS



## STEEL CASINGS

An interior trim which simplifies and reduces cost of installation, eliminates plaster trouble around windows. Steel casings take the

place of wood finish, plaster returns, stools and aprons providing a smooth, durable all steel interior finish which will not swell, shrink, burn or warp.

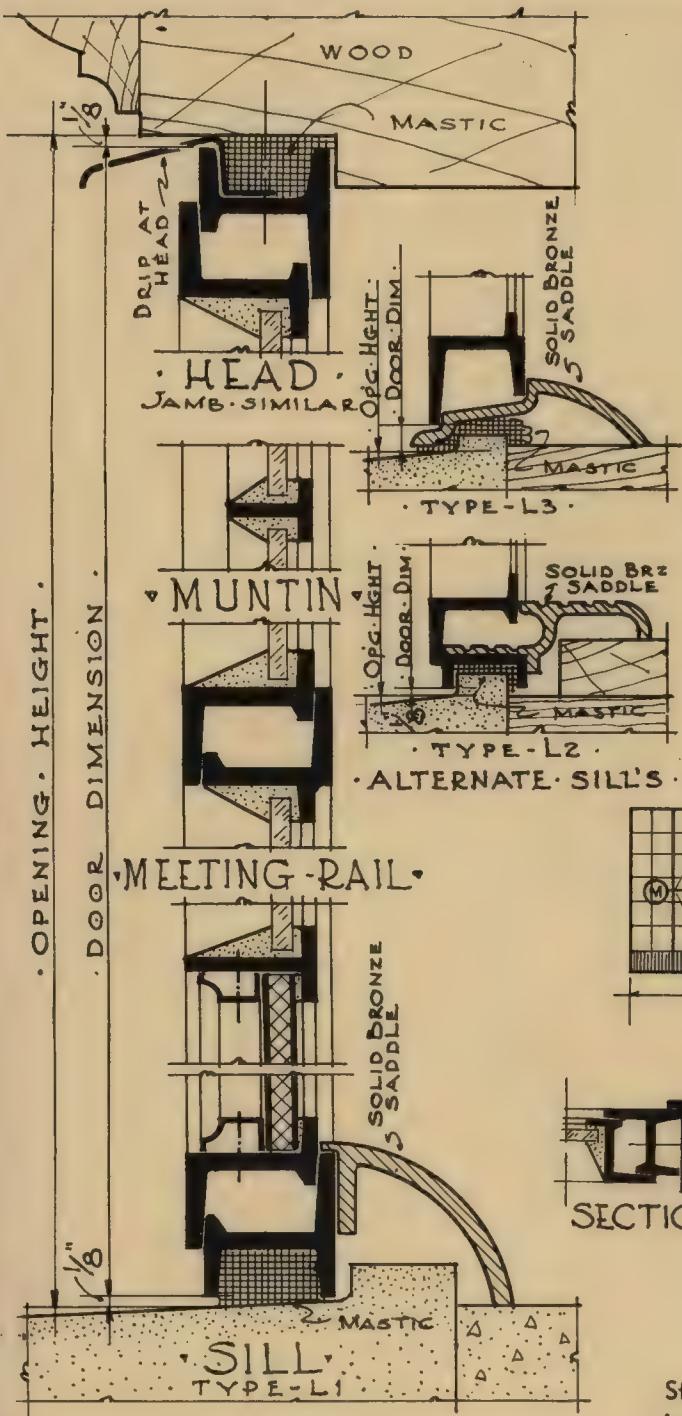


Ceco

**RESIDENCE CASEMENTS**  
METAL CASING INSTALLATION DETAILS

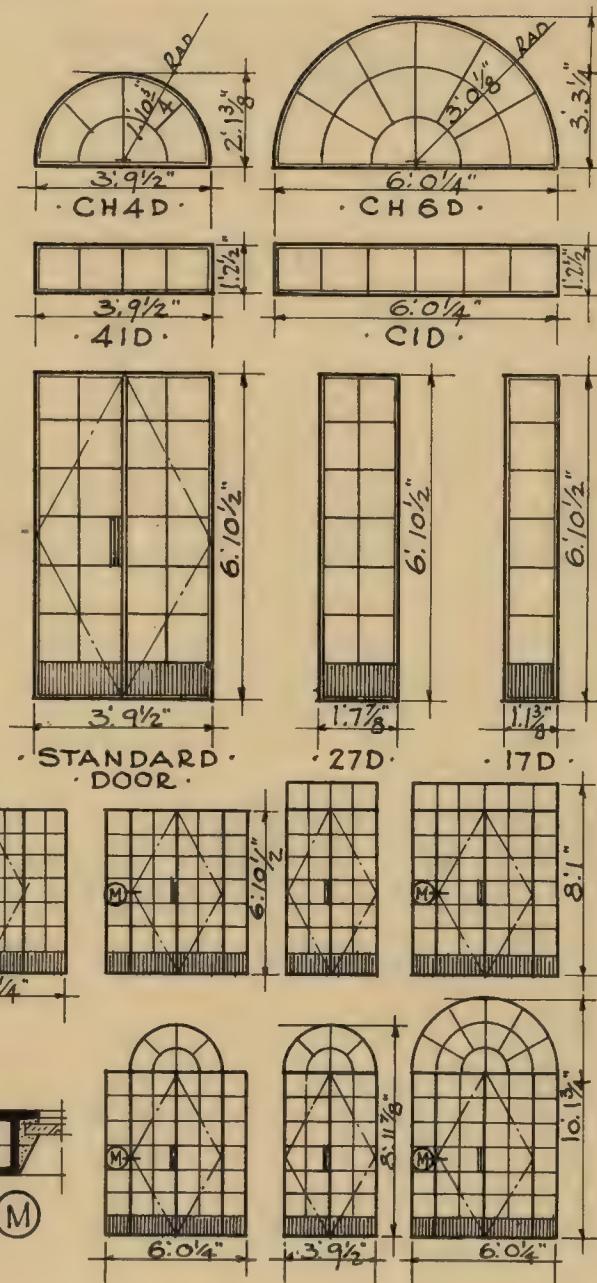
PLATE  
18

**CECO STEEL PRODUCTS CORPORATION**



## SECTION

Detail above shows standard outswing door. Doors swinging inward may be had on special order with double rabbeted threshold furnished. The scale of this detail is one-half of full size.



## HARDWARE

Standard doors swing out and hardware requirements include: hanging of each leaf with three-butts; friction adjuster at the head; concealed top and bottom bolts for inactive leaf; lock set with bronze lever handles operating concealed rods to lock doors at top, bottom and center; provision for night latch on inside of lock set.

Coco

# CASEMENT DOORS

## **SECTION & DETAILS, TYPES & SIZES**

**PLATE  
14**

# CECO STEEL PRODUCTS CORPORATION

## ARCHITECTURAL PROJECTED WINDOWS

Ceco Architectural Projected Windows are ideally suited for all public, commercial, or institutional buildings. They are designed so that weather protection is possible when they are open. Ease of screening is made possible because ventilators either project fully toward the interior or exterior of the normal plane.

### Specifications

#### GENERAL

All windows shall be the Architectural Projected Type as manufactured by the Ceco Steel Products Corporation, of Chicago, Illinois, or approved equal, as per written approval of the architect, and shall be of sizes and types as shown on architect's drawings.

#### MATERIAL

All sections shall be especially designed, hot-rolled, new billet steel.

All frame members shall be unequal leg channel section and shall allow  $\frac{3}{4}$ " continuous anchorage.

Muntins shall be hot-rolled T Sections.

Mullions shall be standard CECO hot-rolled, solid steel T Sections.

#### CONSTRUCTION

Frames and ventilators shall be mortise and tenon, air-hammer riveted at all corners. After assembling, all four corners of the frame and ventilator shall be solidly welded.

Muntins shall be continuous from head to sill and from jamb to jamb and all muntins shall be welded on the inside face of the cross-joint to increase their strength at the point of intersection. Joints at frames shall be mortise and tenon air-hammer riveted.

Ventilators shall have double contact weathering continuous around all four sides.

Each ventilator shall be accurately balanced on two supporting arms of solid steel accurately riveted to the frame and ventilator and concealed when the ventilator is closed. Ventilators shall be operated by means of fully enclosed bronze friction shoes, suspended from the hinged point of the ventilator with an adjustable bolt backed by a compression spring, assuring constant friction at all times.

Bronze shoes are to slide vertically in a channel guide especially adapted and applied properly to assure easy operation.

All weathering members shall be securely welded to the frame and ventilator members.

Where two or more windows are placed side by side in the same opening, provide CECO Vertical mullions.

Mullions shall extend 2" into sills for anchorage.

Where two or more windows are placed one above another in the same opening, provide CECO Horizontal Mullions.

Provide mullion covers for mullions where called for on plans.

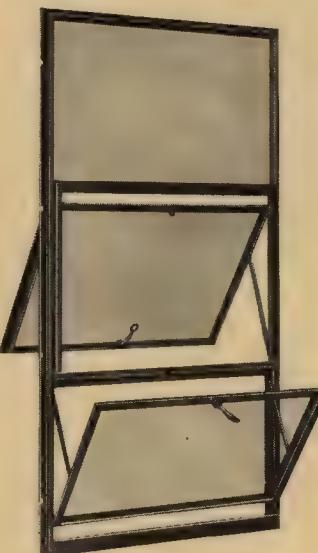
Furnish necessary clips, anchors and bolts for installing the windows.

(Note: Include in steel specifications punching to accommodate clips.)

#### HARDWARE

All hardware shall be bronze throughout.

All ventilators opening out shall be equipped with a bronze cam lock (No. 130) and pole ring (No. 700) of standard CECO design.



All ventilators opening in and within reach of the floor shall be equipped with bronze cam handle (No. 110).

All ventilators opening in and not easily accessible shall be equipped with automatic spring lock (No. 800).

#### ERECTION

All windows shall be erected by the Ceco Steel Products Corporation in openings prepared by others.

All windows shall be set plumb and true, properly aligned and securely anchored before glazing.

Apply unattached hardware in accordance with the manufacturer's directions.

(Note: All structural work for the support of steel windows shall be provided by another contractor.)

(Note: Include in masonry specifications, that all mortar, grouting, pointing, etc., shall be done by the masonry contractor after windows are erected.)

#### PAINTING

All windows shall be given one coat of gray mineral paint before shipment.

(Note: Include in the painting specifications that all windows should be given one additional coat after erection, but before glazing.)

(Note: Windows erected by the Ceco Steel Products Corporation will be field painted by them if specified.)

#### GLASS AND GLAZING

(Note: Glass and glazing should be furnished under glass and glazing specifications and not as part of window specifications.)

All windows glazed from the inside shall be glazed with glazing angles, continuous around lights, attached with screws and hexagon nuts.

Windows glazed from outside shall be putty glazed.

(Note: Always specify glass thickness.)

Glass shall be bedded and face puttied and shall be applied in a neat, clean-cut, smooth manner.

Putty shall be a high grade of steel window putty.

#### SCREENS

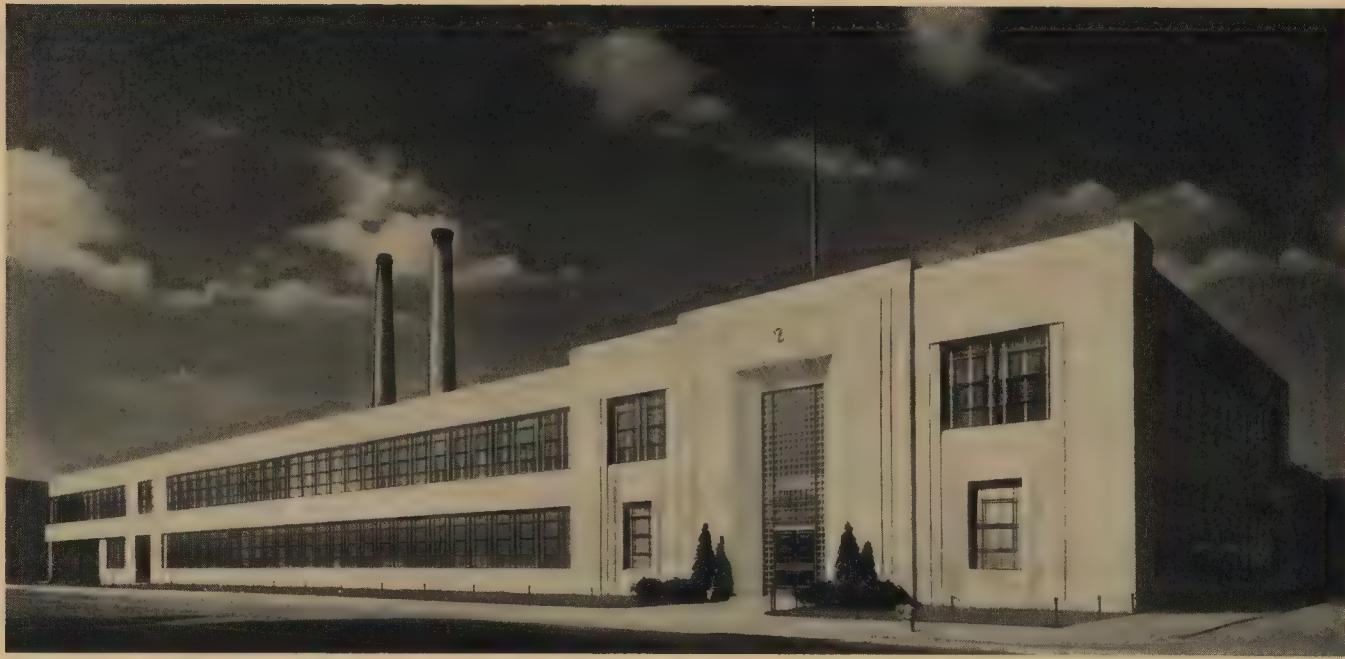
(Note: Screens and preparation for screens are not part of the window contract, but windows can be prepared and screens furnished by the Ceco Steel Products Corporation.)

Note: (Flat screens applied to the outside of window for the Projected-in ventilators and inside for the Projected-out ventilators.)

(Note: Underscreen hardware (No. 550) can be furnished for Projected-out Ventilators at a slight additional cost.)



# CECO STEEL PRODUCTS CORPORATION



PHEOLL MANUFACTURING COMPANY, CHICAGO  
ALFRED S. ALSCHULER, ARCHITECTS, ENGINEERS AND CONTRACTORS

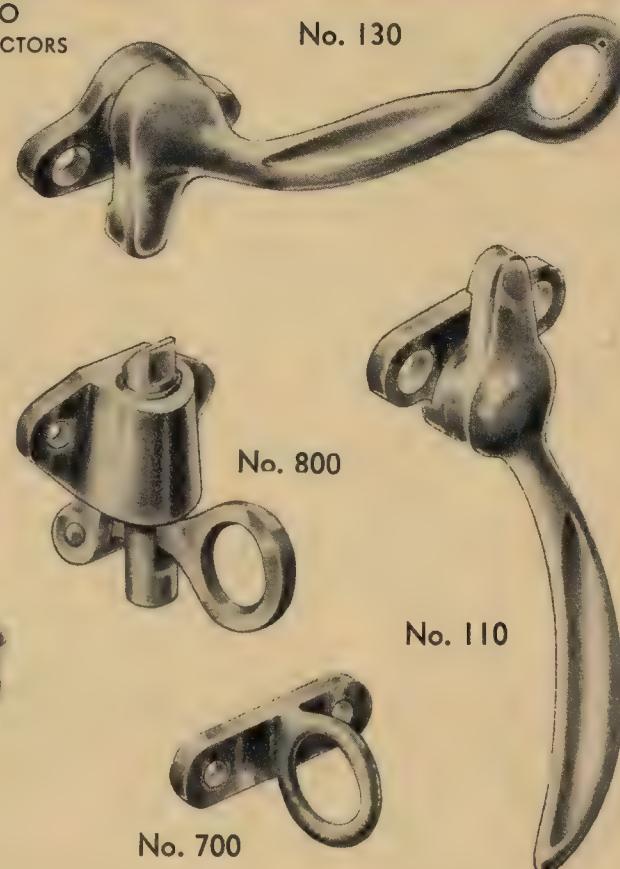
## NOTES

Cam Handle No. 110 is used at top of ventilator on Projected-In Windows. Cam Handle No. 130 is used on all Projected-Out ventilators. Spring Latch No. 800 is optional with Cam Handle No. 110 for Projected-In ventilators. Underscreen operator No. 550 furnished at slight extra cost.

All hardware is bronze with natural bronze finish or highly polished, according to specifications.



No. 550



No. 110



No. 700

*Ceco*

## ARCHITECTURAL PROJECTED WINDOWS HARDWARE

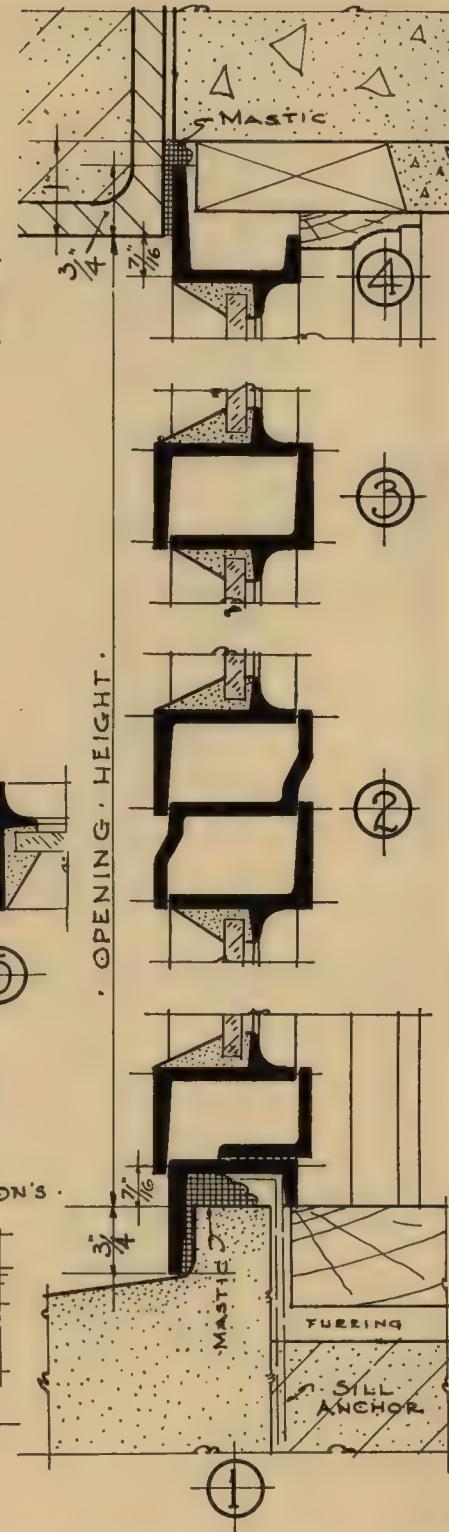
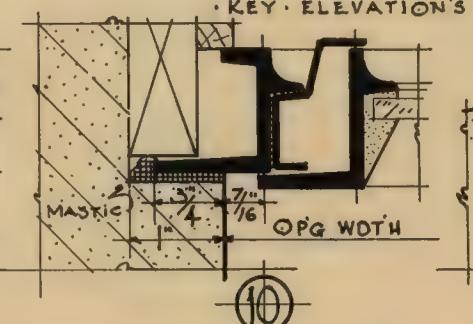
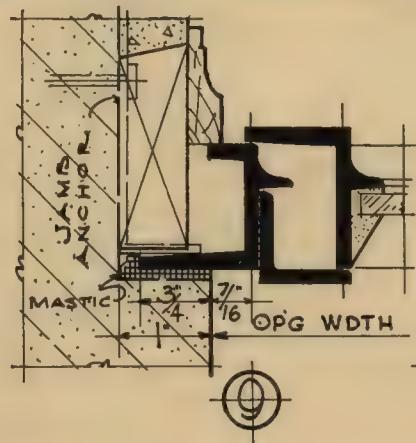
PLATE  
16

# CECO STEEL PRODUCTS CORPORATION



## NOTE

Caulking between window frame and building construction shall be supplied and applied by others.



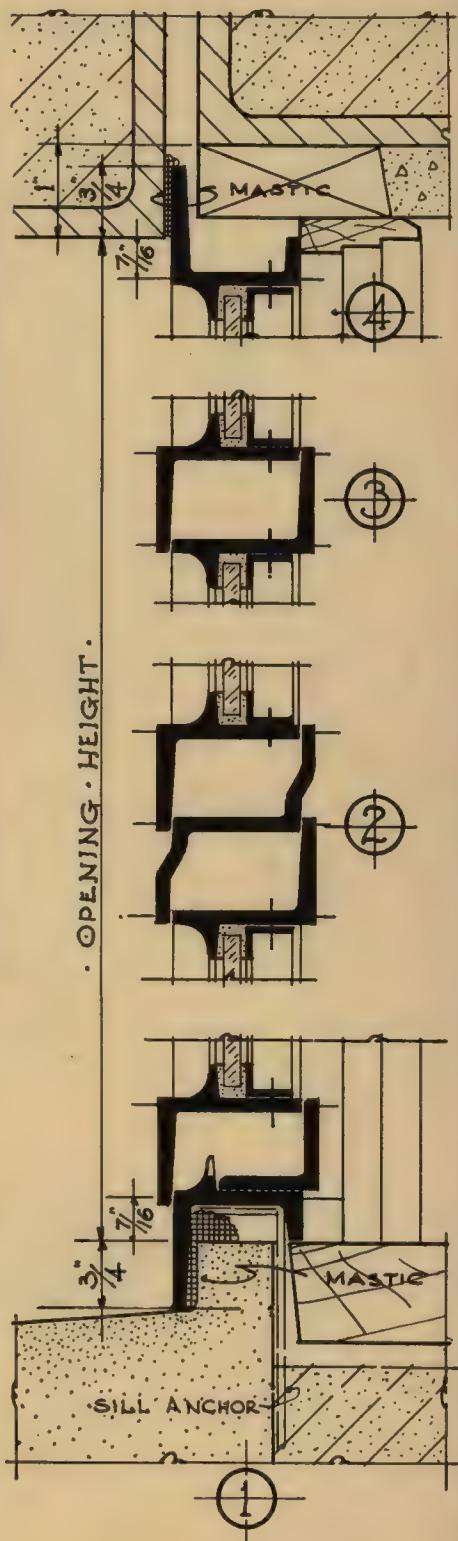
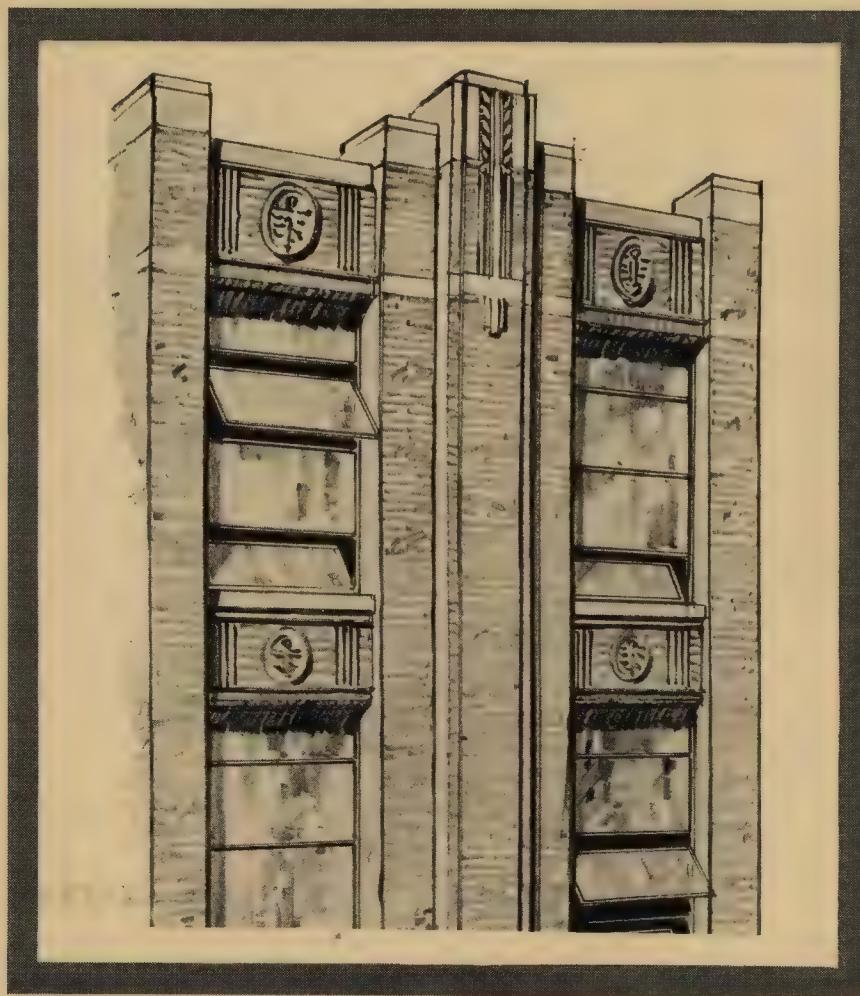
OPENING - HEIGHT.

**ARCHITECTURAL PROJECTED WINDOWS**  
INSTALLATION DETAILS, OUTSIDE PUTTY GLAZING

*Ceco*

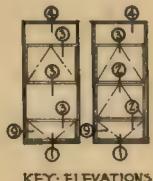
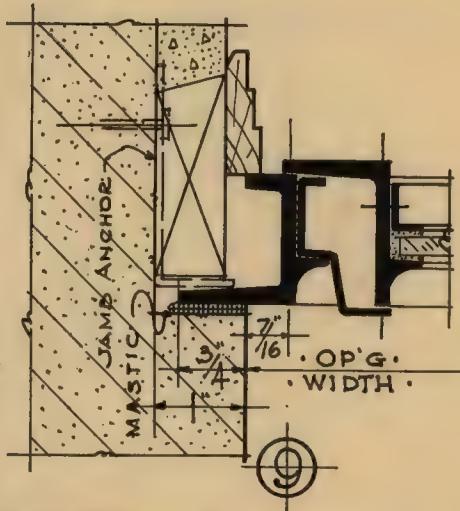
PLATE  
17

# CECO STEEL PRODUCTS CORPORATION



## NOTES

These details, along with those on Plate No. 17 and 19, show the various combinations as used in the manufacture of Ceco Architectural Projected Windows. Points of dimensions for sizes of openings are also shown. Caulking between window frame and building construction shall be supplied and applied by others.



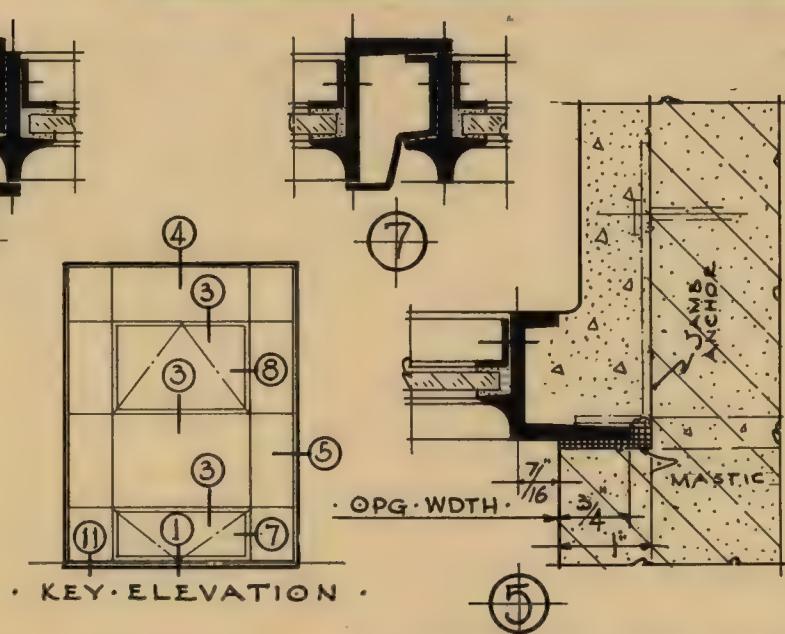
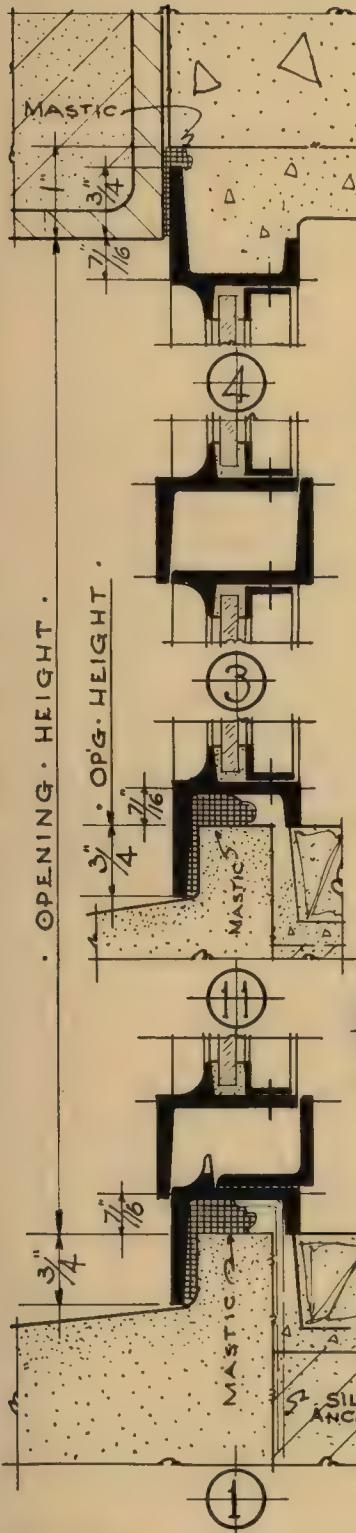
KEY ELEVATIONS

*Ceco*

**ARCHITECTURAL PROJECTED WINDOWS**  
INSIDE ANGLE GLAZING

PLATE  
18

# CECO STEEL PRODUCTS CORPORATION



Ceco

**ARCHITECTURAL PROJECTED WINDOWS**  
INSIDE ANGLE GLAZING

PLATE  
19

# CECO STEEL PRODUCTS CORPORATION

## COMMERCIAL PROJECTED WINDOWS

Ceco Commercial Projected Windows — For use in commercial and industrial buildings when shading and screening are very necessary. These windows are offered in a full range of Standard Types and Sizes.

### Specifications



#### GENERAL

All windows shall be the Commercial Projected Type as manufactured by the Ceco Steel Products Corporation, of Chicago, Illinois, or approved equal, as per written approval of the architect, and shall be of sizes and types as shown on architect's drawings.

#### MATERIAL

All sections shall be especially designed, hot-rolled, new billet steel.

All frame members shall be special angle section and shall allow  $\frac{3}{4}$ " Continuous anchorage.

Muntins shall be hot-rolled T sections.

Mullions shall be standard CECO hot-rolled, solid steel T Sections.

#### CONSTRUCTION

Frames and ventilators shall be mortise and tenon, air-hammer riveted at all corners. After assembling, all four corners of the frame and ventilator shall be solidly welded.

Muntins shall be continuous from head to sill and from jamb to jamb and all muntins shall be welded on the inside face of the cross-joint to increase their strength at the point of intersection. Joints at frames shall be mortise and tenon, air-hammer riveted.

Ventilators shall have double contact weathering continuous around all four sides.

Each ventilator shall be accurately balanced on two supporting arms of solid steel accurately riveted to the frame and ventilator and concealed when the ventilator is closed. Ventilators shall be operated by means of fully enclosed bronze friction shoes suspended from the hinged point of the ventilator with an adjustable bolt backed by a compression spring, assuring constant friction at all times.

Bronze shoes are to slide vertically in a channel guide especially adapted and applied properly to assure easy operation.

All weathering members shall be securely welded to the frame and ventilator members.

Where two or more windows are placed side by side in the same opening, provide CECO Vertical Mullions.

Mullions shall extend two inches into sills for anchorage.

Where two or more windows are placed one above another in the same opening, provide CECO Horizontal Mullions.

Provide mullion covers for mullions where called for on plans.

Furnish necessary clips, anchors and bolts for installing the windows.

(Note: Include in steel specifications punching to accommodate clips.)

#### HARDWARE

All hardware shall be bronze lacquer finish throughout.

All ventilators opening out shall be equipped with a bronze cam lock (No. 7130) and pole ring (No. 7700) of standard CECO design.

All ventilators opening in and within reach of the floor shall be equipped with bronze cam handle (No. 7110).

All ventilators opening in and not easily accessible shall be equipped with automatic spring lock (No. 7800).

#### ERCTION

All windows shall be erected by the Ceco Steel Products Corporation in openings prepared by others.

All windows shall be set plumb and true, properly aligned and securely anchored before glazing. Apply unattached hardware in accordance with the manufacturer's directions.

(Note: Include in masonry specifications that all mortar, grouting, pointing, etc., shall be done by the mason contractor after the windows are erected.)

(Note: All structural work for the support of steel windows shall be provided by another contractor.)

#### PAINTING

All windows shall be given one coat of gray mineral paint before shipment.

(Note: Include in the painting specifications that all windows should be given one additional coat after erection, but before glazing.)

(Note: Windows erected by the Ceco Steel Products Corporation will be field painted by them if specified.)

#### GLASS AND GLAZING

(Note: Glass and glazing should be furnished under glass and glazing specifications and not as part of window specifications.)

All windows shall be glazed from the inside, all glass being set in a bed of putty and secured by glazing clips furnished by the window manufacturer. Face putty shall be applied in a neat, clean-cut, smooth manner.

Putty shall be a high grade of steel window putty.

(Note: Specify types of glass.)

#### SCREENS

(Note: Screens and preparation for screens are not part of the window contract, but windows can be prepared and screens furnished by the Ceco Steel Products Corporation.)

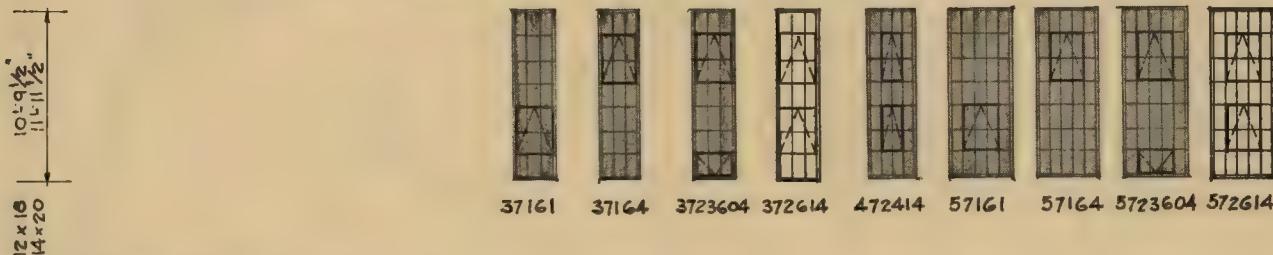
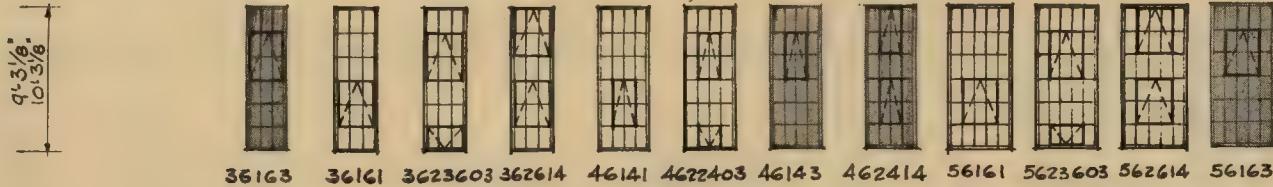
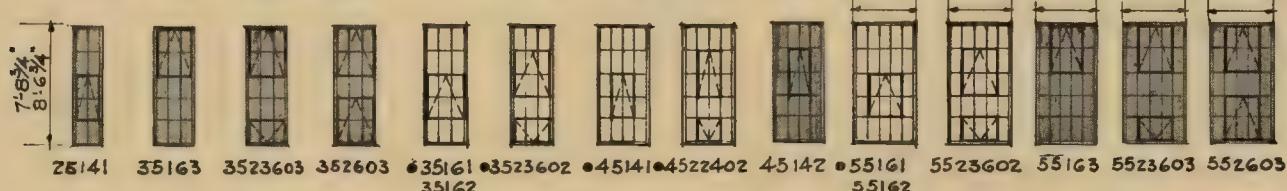
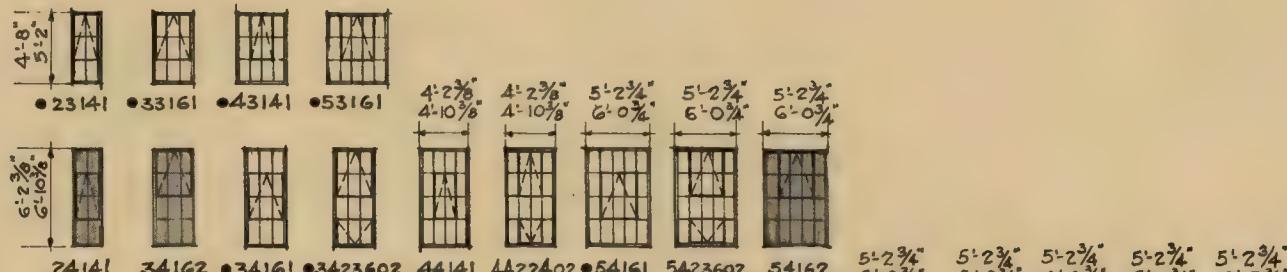
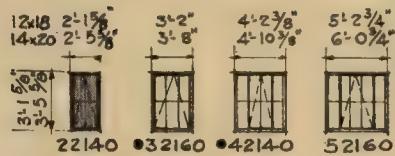
(Note: Flat screens applied to the outside of window for the Projected-In ventilators and inside for the Projected-Out ventilators.)

(Note: Underscreen hardware (No. 7550) can be furnished for Projected-Out ventilators at a slight additional cost.)

#### UNDERWRITERS'

Underwriters' label of approval may be specified for all standard sizes shown and special sizes up to 7' 0" in width by 12' 0" in height. These windows must be inside angle glazed. The maximum glass size is 350 sq. in.

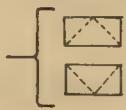
# CECO STEEL PRODUCTS CORPORATION



12	11	12	11	12
18	17	17	17	18
12	11	12	11	12
18	17	17	17	18
12	12	12	12	12
18	18	18	18	18
12	11	12	11	12
18	16	16	16	18

14	13	14	13	14
20	19	19	19	20
14	13	14	13	14
20	19	19	19	20
14	14	14	14	14
20	20	20	20	20
14	13	14	13	14
20	18	18	18	20

Note: "V" indicates projected-in from top. Inverted "V" indicates projected-out from bottom.



## NOTES

Unit dimensions shown here are for masonry openings and two or more units may be combined in an opening by using mullions. The width of opening for a multiple unit opening is equivalent of the sum of each individual unit, plus 2 inches for each mullion added. Ventilators shown as Projected-In or Projected-Out may be reversed without additional cost.

All types shown are punched for mullion bars.

•Warehouse Stock Types.

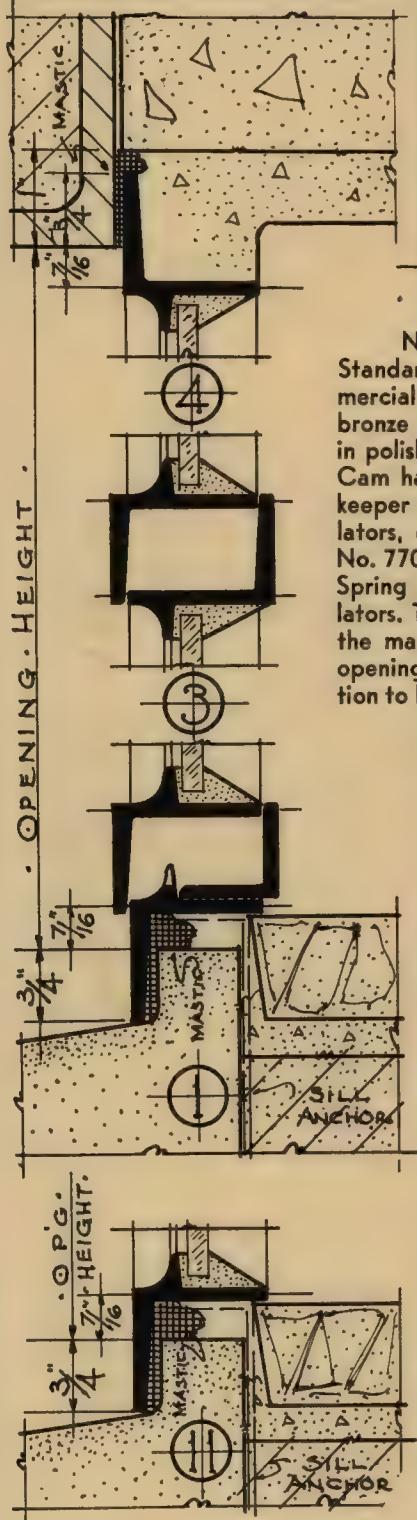
Shaded Units are listed specials. All other units are standard.

Ceco

**COMMERCIAL PROJECTED WINDOWS**  
TYPES AND SIZES

PLATE  
20

# CECO STEEL PRODUCTS CORPORATION



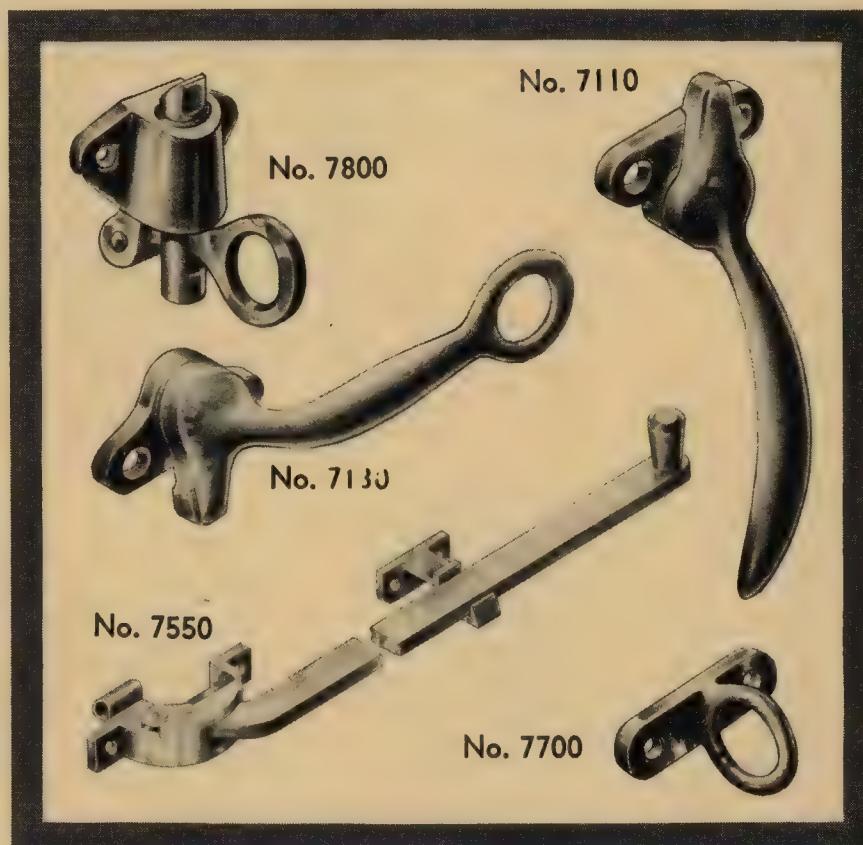
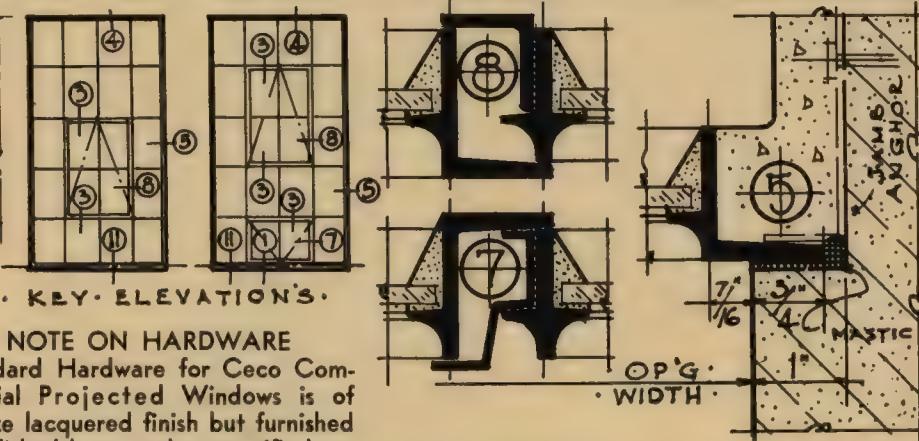
## KEY ELEVATIONS.

### NOTE ON HARDWARE

Standard Hardware for Ceco Commercial Projected Windows is of bronze lacquered finish but furnished in polished bronze when specified.

Cam handle No. 7110 is used on Projected-In ventilators within reach of floor. Steel keeper is attached to frame. Cam Handle No. 7130 is used on all Projected-Out ventilators, either hand or pole operated. Strike plate is embossed on frame. Pole Ring No. 7700 is used at Head of Projected-Out ventilators.

Spring Lock No. 7800 is optional with Cam Handle No. 7110 for Projected-In ventilators. The details shown on this plate give complete combinations of sections used in the manufacture of Ceco Commercial Projected Windows. Points of dimensions for opening sizes are also shown. Caulking between window frame and building construction to be supplied and applied by others.

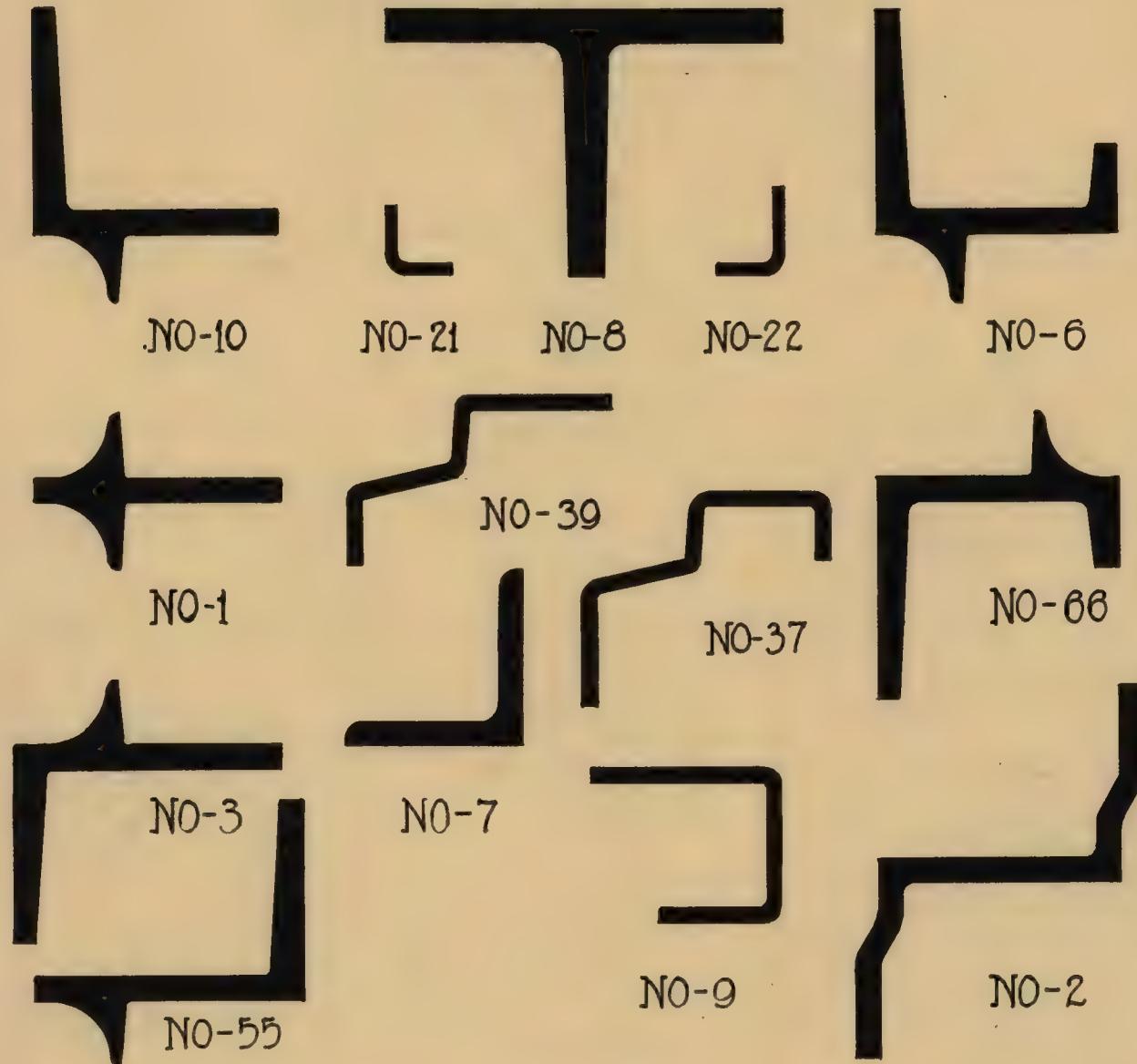


*Ceco*

**COMMERCIAL PROJECTED WINDOWS**  
INSTALLATION DETAILS & HARDWARE

PLATE  
21

# CECO STEEL PRODUCTS CORPORATION



## DESCRIPTION

1—Muntin Bar.  
 2—Meeting Rail.  
 3—Ventilator member.  
 6—Frame member for Architectural Projected inside glazed windows.  
 7—Sill weathering member for ventilators.  
 8—Mullion T-Bar for joining two or more units.  
 9—Weathering member for pivoted ventilators.

10—Frame member for commercial projected and pivoted windows.  
 21—Glazing angle standard for Underwriters' Labelled windows.  
 Also applicable to commercial Projected and Pivoted windows.  
 22—Glazing Angle for Architectural Projected Windows.  
 37—Weathering member for ventilators projected inward.  
 39—Weathering member for project out and pivoted ventilators.  
 55—Ventilator member.  
 66—Frame member for outside glazed windows.

These sections are for Architectural Projected, Commercial  
Projected, Pivoted and Underwriters' Labelled Windows.

*Ceco*

**STANDARD WINDOW SECTIONS**  
FULL SIZE

PLATE  
22

# CECO STEEL PRODUCTS CORPORATION

## PIVOTED WINDOWS

Where shading and screening are not so essential, and a slight economy is desired, Ceco Pivoted Windows are ideal. The usual Ceco standards of quality are embodied in this window, operation of the ventilator being the only major difference.

### Specifications

#### GENERAL

All windows shall be the Horizontally Pivoted Type as manufactured by the Ceco Steel Products Corporation, of Chicago, Illinois, or approved equal, as per written approval of the architect and shall be of sizes and types as shown on architect's drawings.

#### MATERIAL

All sections shall be especially designed, hot-rolled, new billet steel.

All frame members shall be special angle section and shall allow  $\frac{3}{4}$ " continuous anchorage.

Muntins shall be hot-rolled T sections.

Mullions shall be standard CECO hot-rolled solid steel T sections.

#### CONSTRUCTION

Frames and ventilators shall be mortise and tenon, air-hammer riveted at all corners.

Muntins shall be continuous from head to sill and from jamb to jamb and all muntins shall be welded on the inside face of the cross-joint to increase their strength at the point of intersection. Joint at frames shall be mortise and tenon, air-hammer riveted.

Ventilators shall have double contact weathering continuous around all four sides.

All ventilators shall be horizontally pivoted and supported by special solid rolled steel external butts, double riveted through the weathering and window members.

All weathering members shall be securely welded to the frame and ventilator members.

Where two or more windows are placed side by side in the same opening, provide CECO Vertical Mullions.

Mullions shall extend two inches into sills for anchorage.

Where two or more windows are placed one above another in the same opening, provide CECO Horizontal Mullions.

Furnish necessary clips, anchors and bolts for installing the windows.

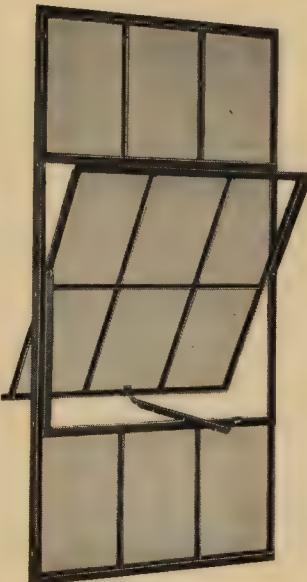
(Note: Include in steel specifications punching to accommodate clips.)

#### HARDWARE

All ventilators shall be equipped with either push-bar or cam lock hardware as required.

#### MECHANICAL OPERATORS

All units of ventilators shown on drawings as "Mechanically Controlled" shall be equipped with an approved type of operator as furnished by Ceco Steel Products Corporation.



#### ERECTION

All windows shall be erected by the Ceco Steel Products Corporation in openings prepared by others.

All windows shall be set plumb and true, properly aligned and securely anchored before glazing.

Apply unattached hardware in accordance with the manufacturer's directions.

(Note: Include in masonry specifications that all mortar, grouting, pointing, etc., shall be done by the mason contractor after the windows are erected.)

(Note: All structural work for the support of steel windows shall be provided for by another contractor.)

#### PAINTING

All windows shall be given one coat of gray mineral paint before shipment.

(Note: Include in the painting specifications that all windows should be given one additional coat after erection but before glazing.)

(Note: Windows erected by the Ceco Steel Products Corporation will be field painted by them if specified.)

#### GLASS AND GLAZING

(Note: Glass and glazing should be furnished under glass and glazing specifications and not as part of window specifications.)

All windows shall be glazed from the inside, all glass being set in a bed of putty and secured by glazing clips furnished by the window manufacturer. Face putty shall be applied in a neat, clean-cut, smooth manner.

Putty shall be a high grade of steel window putty.

(Note: Specify types of glass.)

#### SCREENS

Note: Screens and preparation for screens are not part of the window contract, but windows can be prepared and screens furnished by the Ceco Steel Products Corporation.)

(Note: Metal screens are so arranged that the upper half of the screen is outside of the ventilator and the lower half on the inside.)

#### UNDERWRITERS

Underwriters' label of approval may be specified for all standard sizes shown and special sizes up to 7'0" in width by 12'0" in height. These windows must be inside angle glazed. The maximum glass size is 350 sq. in.

# CECO STEEL PRODUCTS CORPORATION

## COMBINATION OF STANDARD UNITS

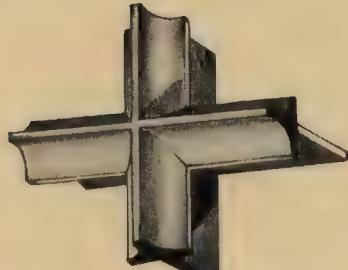
Standard sizes and openings are shown below and by referring to height and width dimensions, sizes close to those needed can be easily ascertained. The number of units necessary to fill the opening is also given.

When two or more units are placed together, two inches have been added to the width dimensions as shown in the table for each unit used.

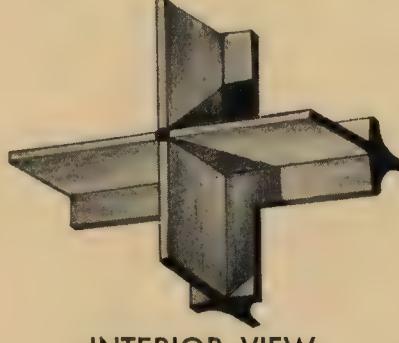
12" x 18" Glass	Total Number of Units	NO. OF LIGHTS PER UNIT	Position of each number indicates position of unit in opening	Total Number of Lights	Total Number of Muntins	14" x 20" Glass	
						Widths of Openings	Widths of Openings
2'	15 $\frac{1}{2}$ "	1	2	2	None	2'	5 $\frac{1}{2}$ "
3'	20"	1	3	3	"	3'	8"
4'	23 $\frac{1}{2}$ "	1	4	4	"	4'	10 $\frac{1}{2}$ "
5'	23 $\frac{1}{2}$ "	1	5	5	"	6'	12 $\frac{1}{2}$ "
6'	31 $\frac{1}{2}$ "	1	6	6	"	7'	13 $\frac{1}{2}$ "
8'	6"	2	3, 3	6	1	7'	6"
8'	6 $\frac{1}{2}$ "	2	4, 4	8	1	9'	10 $\frac{1}{4}$ "
9'	10"	3	3, 3, 3	9	2	11'	4 $\frac{1}{2}$ "
10'	7 $\frac{1}{2}$ "	2	5, 5	10	1	12'	3 $\frac{1}{2}$ "
10'	10 $\frac{1}{2}$ "	3	3, 4, 3	10	2	12'	6 $\frac{1}{2}$ "
11'	10 $\frac{1}{2}$ "	3	3, 5, 3	11	2	13'	8 $\frac{1}{2}$ "
11'	10 $\frac{1}{2}$ "	3	4, 3, 4	11	2	13'	8 $\frac{1}{2}$ "
12'	8 $\frac{1}{4}$ "	2	6, 6	12	1	14'	9 $\frac{1}{4}$ "
12'	11 $\frac{1}{2}$ "	3	4, 4, 4	12	2	14'	11 $\frac{1}{2}$ "
13'	11 $\frac{1}{2}$ "	3	4, 5, 4	13	2	16'	11 $\frac{1}{2}$ "
13'	11 $\frac{1}{2}$ "	3	5, 3, 5	13	2	16'	11 $\frac{1}{2}$ "
14'	11 $\frac{1}{2}$ "	3	4, 6, 4	14	2	17'	13 $\frac{1}{2}$ "
14'	17 $\frac{1}{2}$ "	3	5, 4, 5	14	2	17'	3 $\frac{1}{2}$ "
15'	2 $\frac{1}{4}$ "	4	3, 4, 4, 3	14	3	17'	6 $\frac{1}{4}$ "
16'	0 $\frac{1}{4}$ "	3	5, 5, 5	15	2	18'	6 $\frac{1}{4}$ "
16'	0 $\frac{1}{4}$ "	3	6, 3, 6	15	2	18'	6 $\frac{1}{4}$ "
17'	0 $\frac{1}{2}$ "	3	5, 6, 5	16	2	19'	8 $\frac{1}{2}$ "
17'	0 $\frac{1}{2}$ "	3	6, 4, 6	16	2	19'	8 $\frac{1}{2}$ "
17'	3 $\frac{1}{2}$ "	4	4, 4, 4, 4	16	3	19'	11 $\frac{1}{2}$ "
18'	1 $\frac{1}{2}$ "	3	6, 5, 6	17	2	20'	1 $\frac{1}{2}$ "
19'	1 $\frac{1}{2}$ "	3	6, 6, 6	18	2	22'	1 $\frac{1}{2}$ "
19'	4 $\frac{1}{4}$ "	4	3, 6, 6, 3	18	3	22'	4 $\frac{1}{4}$ "
19'	4 $\frac{1}{4}$ "	4	4, 5, 4, 4	18	3	22'	4 $\frac{1}{4}$ "
20'	7 $\frac{1}{2}$ "	5	5, 3, 3, 3, 5	19	4	23'	9 $\frac{1}{2}$ "
21'	8"	4	5, 5, 5, 5	20	3	24'	8"
21'	5"	4	4, 6, 6, 4	20	3	24'	8"
21'	7 $\frac{1}{2}$ "	5	4, 4, 4, 4, 4	20	4	24'	11 $\frac{1}{2}$ "
22'	8 $\frac{1}{4}$ "	5	3, 5, 5, 5, 3	21	4	26'	2 $\frac{1}{4}$ "
23'	5 $\frac{1}{4}$ "	4	5, 6, 6, 5	22	3	27'	1 $\frac{1}{4}$ "
23'	0 $\frac{1}{2}$ "	5	5, 4, 4, 4, 5	22	4	27'	4 $\frac{1}{2}$ "
23'	1 $\frac{1}{2}$ "	6	3, 4, 4, 4, 4, 3	22	5	27'	7 $\frac{1}{2}$ "
24'	9"	5	4, 5, 5, 5, 4	23	4	28'	7"
25'	6 $\frac{1}{4}$ "	4	6, 6, 6, 6	24	3	29'	6 $\frac{1}{4}$ "
25'	9 $\frac{1}{4}$ "	5	3, 6, 6, 6, 3	24	4	29'	9 $\frac{1}{4}$ "
26'	0 $\frac{1}{4}$ "	6	4, 4, 4, 4, 4, 4	24	5	30'	0 $\frac{1}{4}$ "
26'	9 $\frac{3}{4}$ "	5	5, 5, 5, 5, 5	25	4	30'	11 $\frac{1}{4}$ "
27'	10 $\frac{1}{4}$ "	5	5, 5, 5, 5, 5	26	4	32'	2 $\frac{1}{4}$ "
28'	1"	6	5, 4, 4, 4, 5	26	5	32'	5"
28'	1"	6	3, 5, 5, 5, 5, 3	26	5	32'	5"
28'	10 $\frac{1}{4}$ "	5	4, 5, 5, 5, 6	27	4	33'	4 $\frac{1}{4}$ "
29'	10 $\frac{1}{4}$ "	5	5, 6, 6, 5, 5	28	4	34'	6 $\frac{1}{4}$ "
30'	13 $\frac{1}{4}$ "	6	4, 5, 5, 5, 5, 4	28	5	34'	9 $\frac{1}{4}$ "
30'	11 $\frac{1}{4}$ "	5	4, 6, 6, 5, 6	29	4	35'	9 $\frac{1}{4}$ "
31'	11 $\frac{1}{2}$ "	5	6, 6, 6, 6, 6	30	4	36'	11 $\frac{1}{2}$ "
32'	2 $\frac{1}{2}$ "	6	5, 5, 5, 5, 5, 5	30	5	37'	2 $\frac{1}{2}$ "
33'	5 $\frac{1}{4}$ "	7	4, 4, 5, 5, 4, 4	31	6	38'	7 $\frac{1}{4}$ "
34'	3 $\frac{1}{4}$ "	6	4, 6, 6, 6, 6, 4	32	5	39'	7 $\frac{1}{4}$ "
35'	6 $\frac{1}{2}$ "	7	4, 5, 5, 5, 5, 4	33	6	41'	0 $\frac{1}{2}$ "
36'	4"	6	5, 6, 6, 6, 6, 5	34	5	42'	0 $\frac{1}{2}$ "
37'	7 $\frac{1}{4}$ "	7	5, 5, 5, 5, 5, 5	35	6	43'	5 $\frac{1}{4}$ "
38'	4 $\frac{1}{4}$ "	6	6, 6, 6, 6, 6, 6	36	5	44'	4 $\frac{1}{4}$ "
39'	8"	7	6, 5, 5, 5, 5, 6	37	6	45'	10"
40'	8 $\frac{1}{4}$ "	7	4, 6, 6, 6, 6, 6	38	6	47'	0 $\frac{1}{4}$ "
41'	8 $\frac{1}{4}$ "	7	6, 6, 6, 6, 6, 6	39	6	48'	2 $\frac{1}{4}$ "
42'	9 $\frac{1}{4}$ "	7	6, 6, 6, 6, 6, 6	40	6	49'	5 $\frac{1}{4}$ "
43'	0"	8	5, 5, 5, 5, 5, 5, 5	40	7	49'	0"
43'	9 $\frac{1}{2}$ "	7	6, 6, 6, 6, 6, 6	41	6	50'	7 $\frac{1}{2}$ "
44'	9 $\frac{1}{2}$ "	7	6, 6, 6, 6, 6, 6	42	6	51'	9 $\frac{1}{2}$ "
45'	0 $\frac{1}{4}$ "	8	6, 5, 5, 5, 5, 6	42	7	52'	0 $\frac{1}{4}$ "

## HEIGHTS OF OPENINGS

12" x 18" Glass		14" x 20" Glass	
Lights High	Height of Openings	Lights High	Height of Openings
1	7 $\frac{1}{2}$ "	1	9 $\frac{1}{2}$ "
2	3 $\frac{1}{2}$ "	2	3 $\frac{1}{2}$ "
3	4 $\frac{1}{2}$ "	3	5 $\frac{1}{2}$ "
4	6"	4	6"
5	7 $\frac{1}{2}$ "	5	8 $\frac{1}{2}$ "
6	9 $\frac{1}{2}$ "	6	10 $\frac{1}{2}$ "
7	10"	7	11 $\frac{1}{2}$ "



EXTERIOR VIEW



INTERIOR VIEW

## THE STRONG, NEAT JOINT

The finished appearance of the CECO muntin cross joint, with all bars running uniformly and no projections to mar the straight line effect, is shown by the drawings of the interior and exterior views of the completed muntin joint.

The interior view of the joint shows where the muntin bars are welded as illustrated above.

CECO Windows are noted for their strength and rigidity. This feature is worth considering, for strength is necessary to withstand shipment, to retain their shape during erection and to withstand the heavy wind pressure to which steel windows are often subjected.

## EVERY MUNTIN JOINT IS WELDED

After the window has been assembled, each cross muntin joint is welded. This process delivers practically a one-piece window because each bar is rigidly tied to the other.

Muntin bars are riveted to frame by air riveting.

All bars are cut and punched in one operation on large multiple punch presses. Each bar is identical as to location of notches in the bars, so that each window is always true to size and shape.

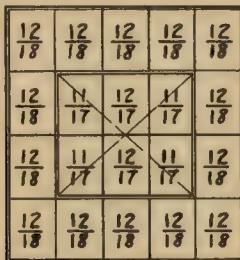
Each unit is carefully inspected by placing the window in a specially designed frame. Ventilator is fitted and inspected to insure a weather-tight yet easily operated ventilator.

Ceco

**PIVOTED WINDOWS**  
MUNTIN CONSTRUCTION AND UNIT SCHEDULE

PLATE  
23

# CECO STEEL PRODUCTS CORPORATION



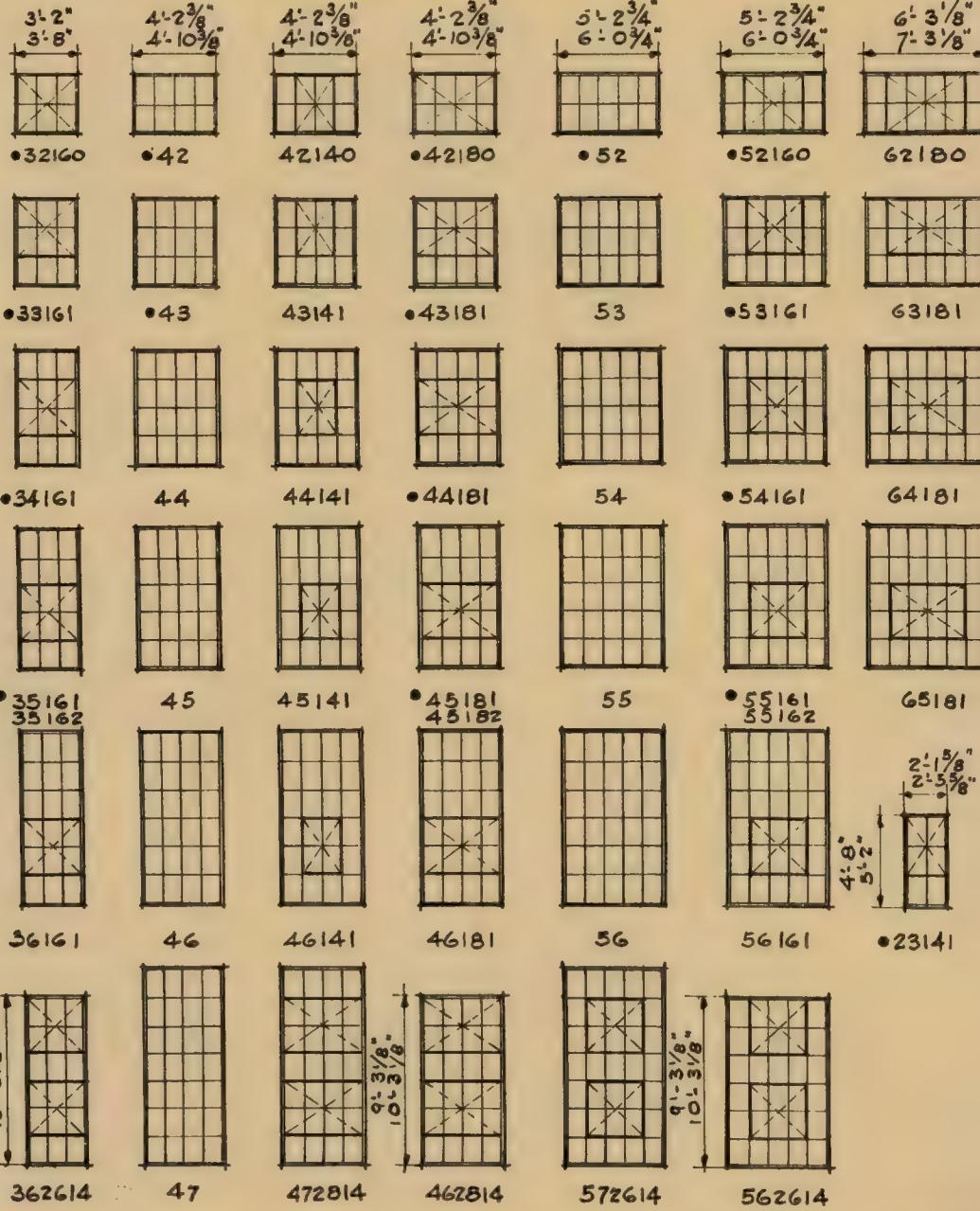
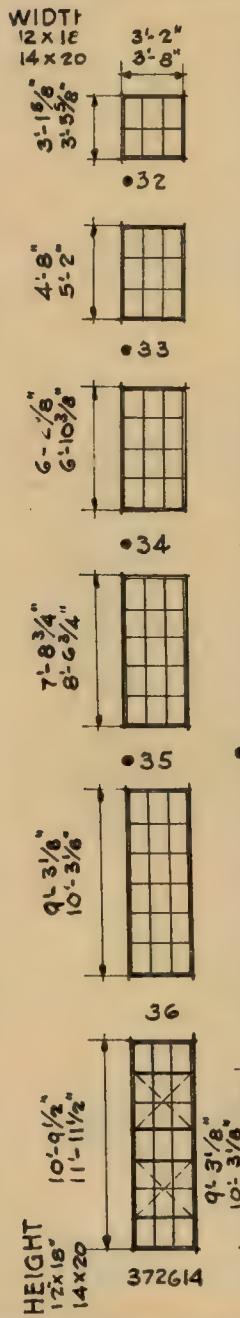
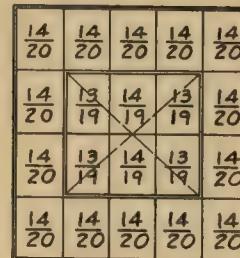
## GLASS FOR VENTILATORS

The proper glass sizes for ventilators are shown to the left and right. Ventilators call for smaller lights which should be cut to dimensions given in these diagrams.

### \*Warehouse Stock Types.

Other units are Standard Types.

NOTE: For other types see Near Standards Plate No. 27.

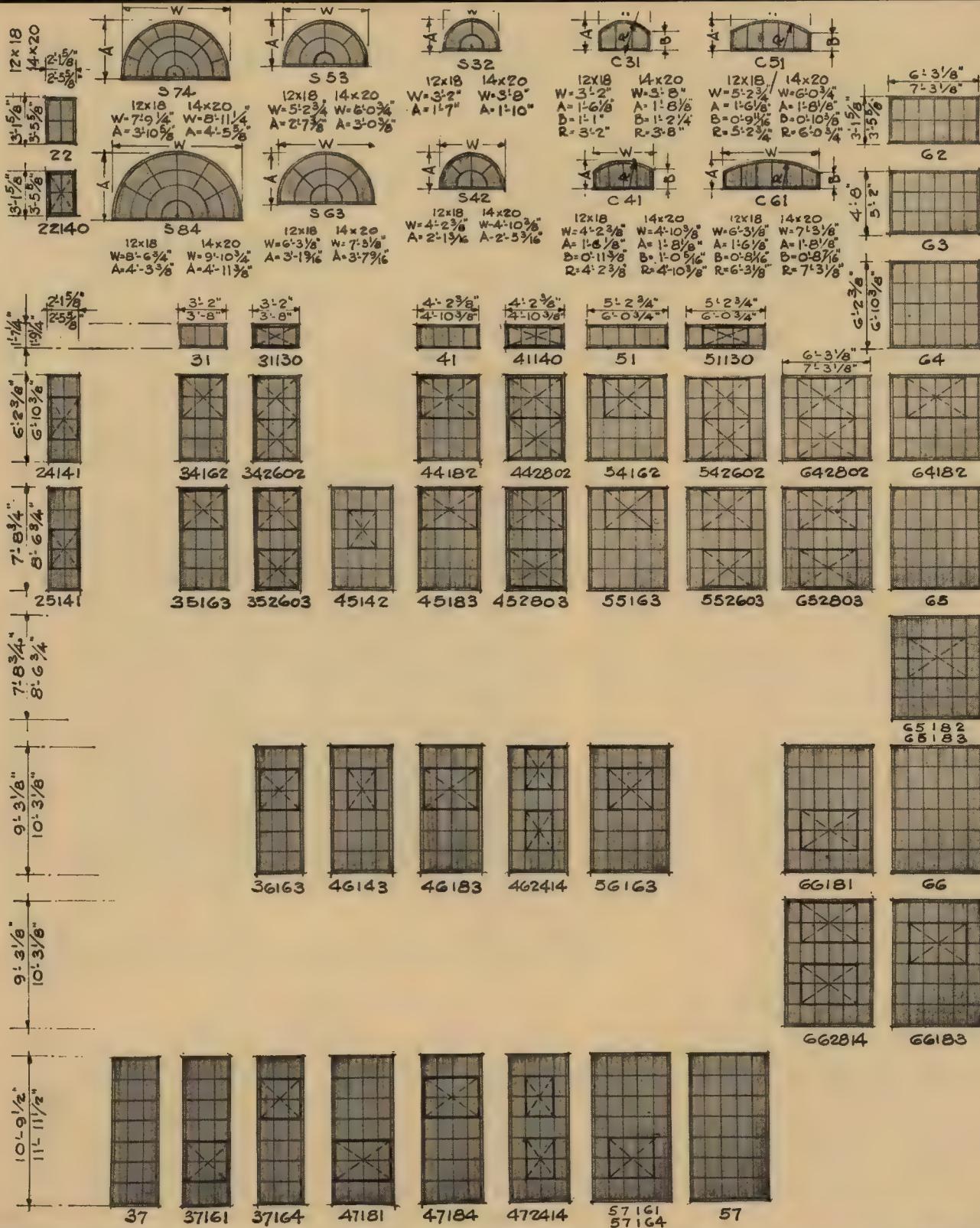


Ceco

**PIVOTED WINDOWS**  
STANDARD TYPES & SIZES

PLATE  
24

# CECO STEEL PRODUCTS CORPORATION

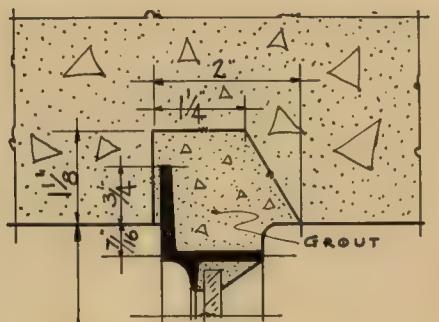


Ceco

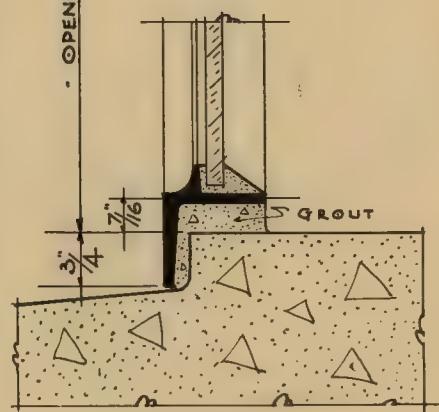
**PIVOTED WINDOWS**  
NEAR STANDARD TYPES AND SIZES

PLATE  
25

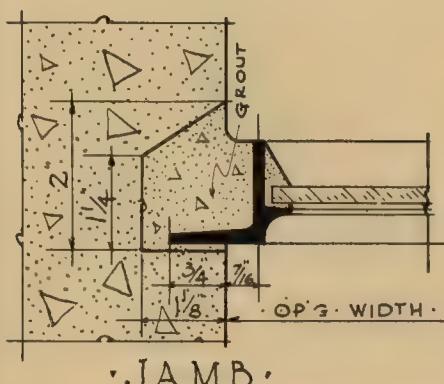
# CECO STEEL PRODUCTS CORPORATION



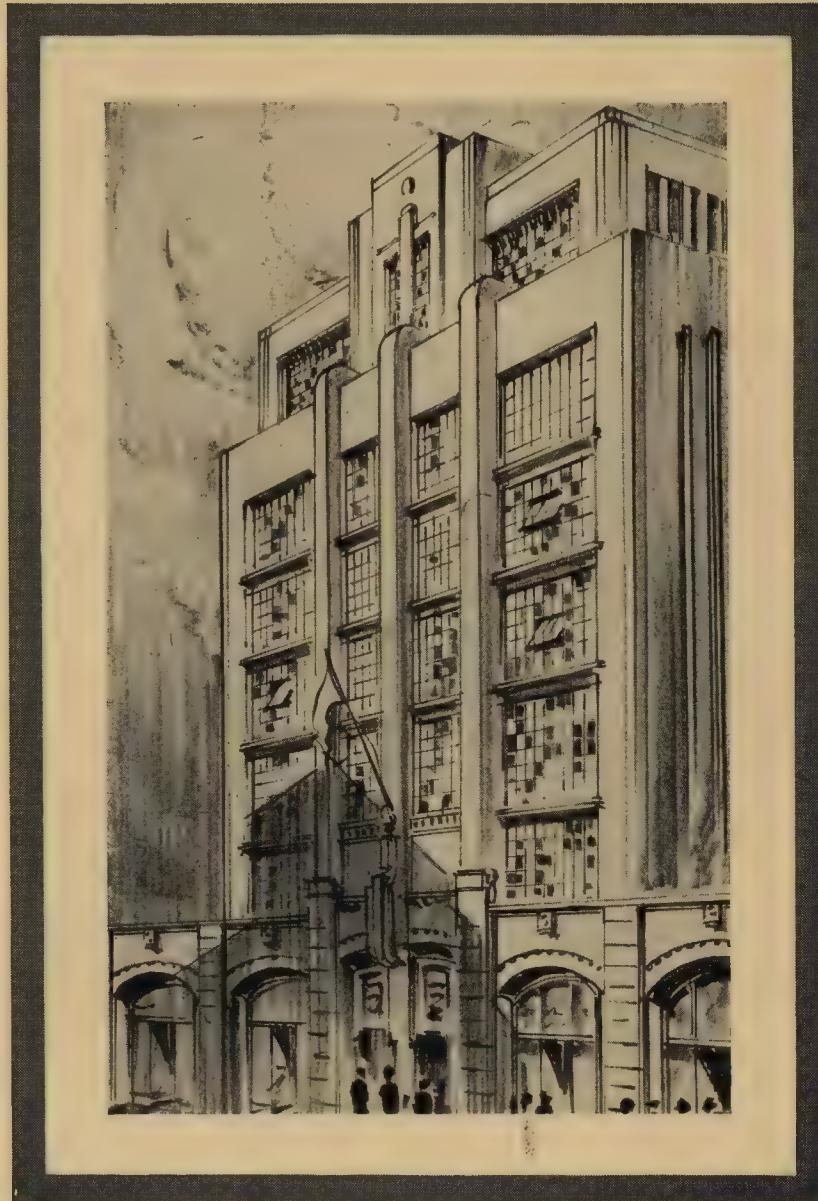
• HEAD.



• SILL.



• JAMB.



## NOTES

These details illustrate a typical concrete installation. Walls are poured with strips nailed to the forms so that when the forms are removed space is left in the wall proper to receive the sash. After grouting, as shown in details at left, sash is permanently anchored to the wall construction. The sill usually being poured after setting the sash.

**Ceco**

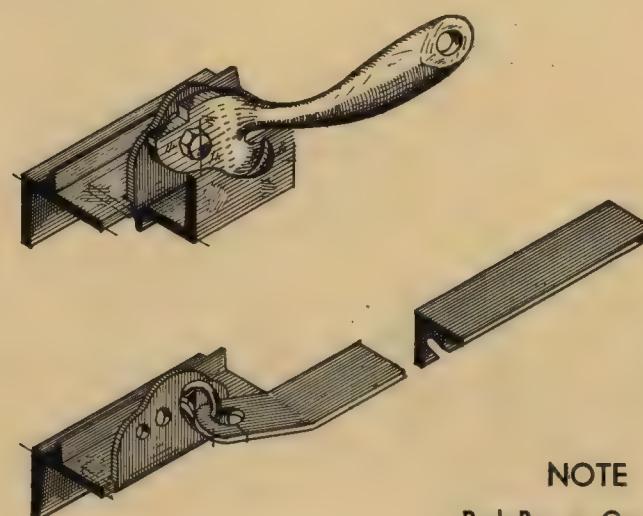
**PIVOTED WINDOWS**  
CONCRETE INSTALLATION DETAILS

**PLATE**  
**26**

# CECO STEEL PRODUCTS CORPORATION

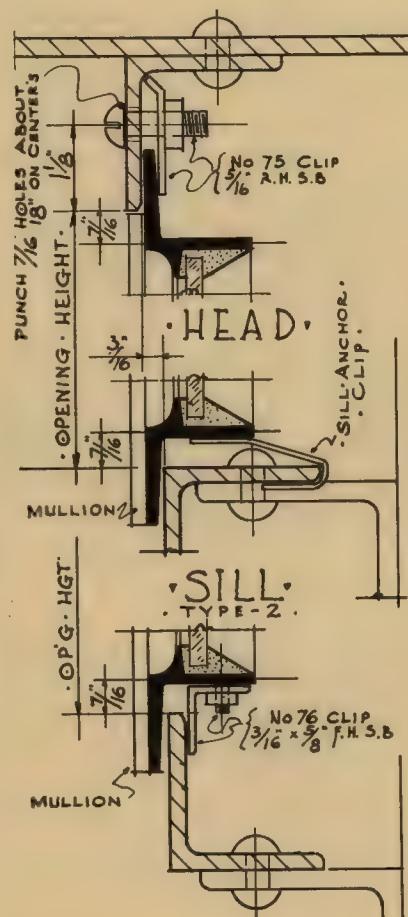
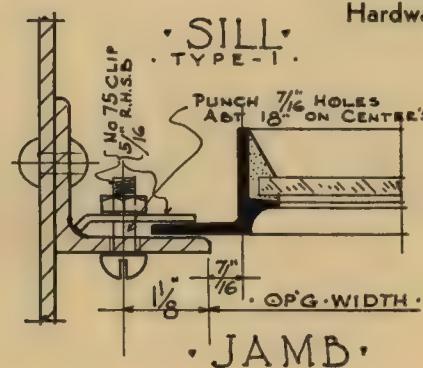


CENTRAL STEEL & WIRE COMPANY, CHICAGO  
ALFRED S. ALSCHULER, ARCHITECTS, ENGINEERS AND CONTRACTORS



NOTE

Push-Bar or Cam Lock  
Hardware is optional.

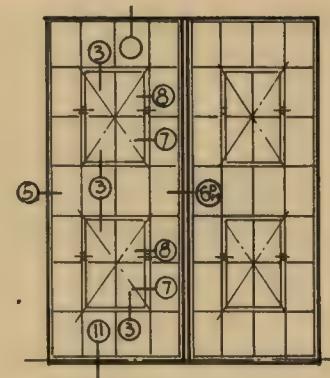
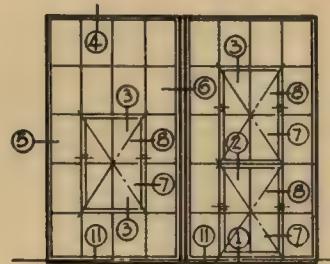
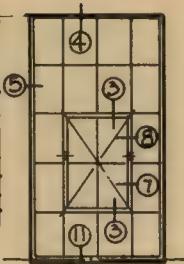
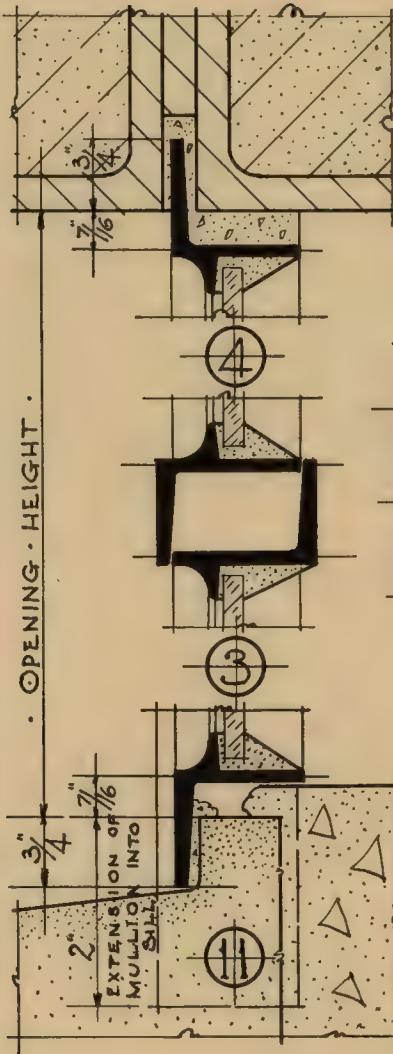


Ceco

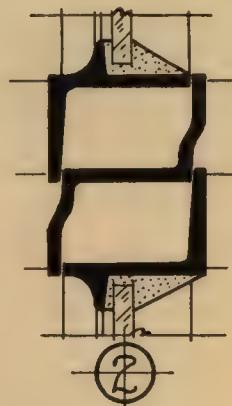
PIVOTED WINDOWS  
STEEL ANGLE INSTALLATION DETAILS

PLATE  
27

# CECO STEEL PRODUCTS CORPORATION

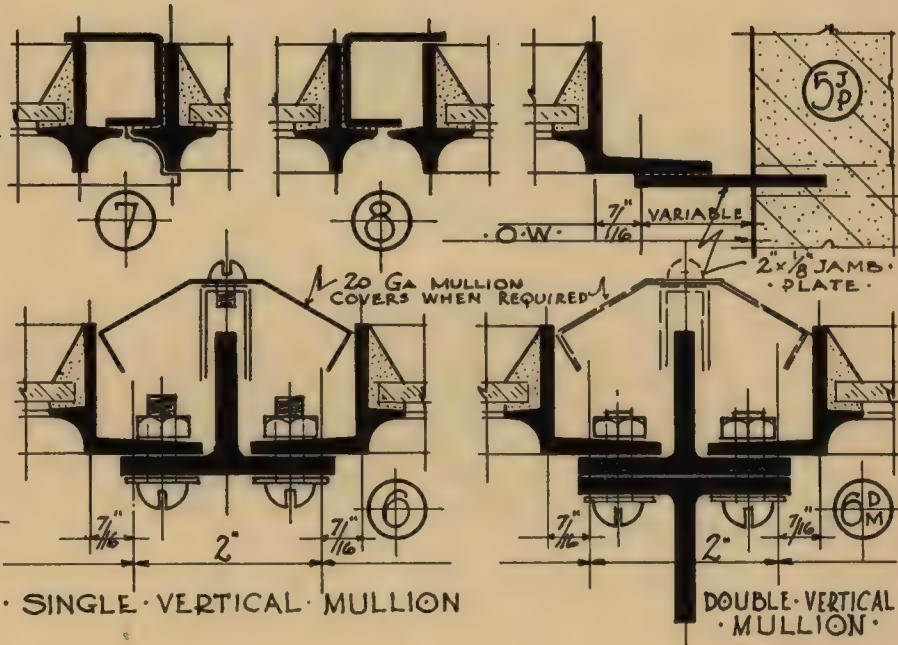
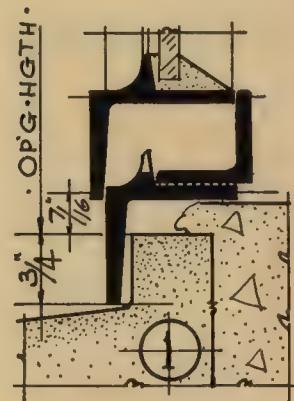


· KEY · ELEVATIONS ·



NOTE

Push-Bar or Cam Lock Hardware is optional.

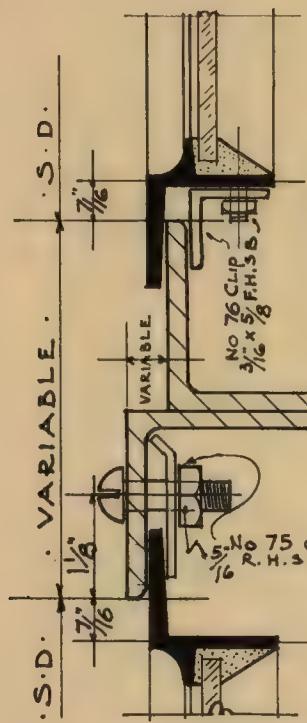


Ceco

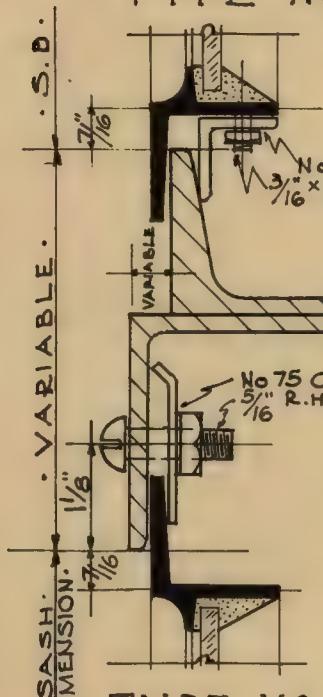
**PIVOTED WINDOWS**  
BRICK INSTALLATION DETAILS

PLATE  
28

# CECO STEEL PRODUCTS CORPORATION

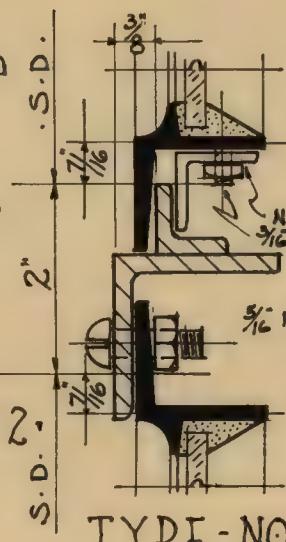


• TYPE - NO 2.

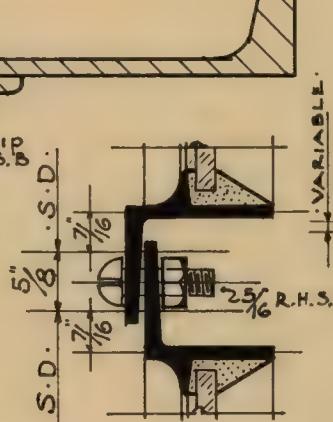


• TYPE - NO 1.

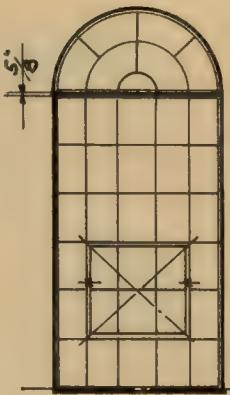
Horizontal mullions as shown in these details are furnished as standard. Special designs and special types will be furnished upon specification.



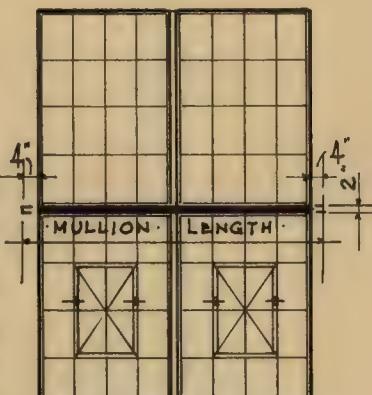
TYPE - NO 3.



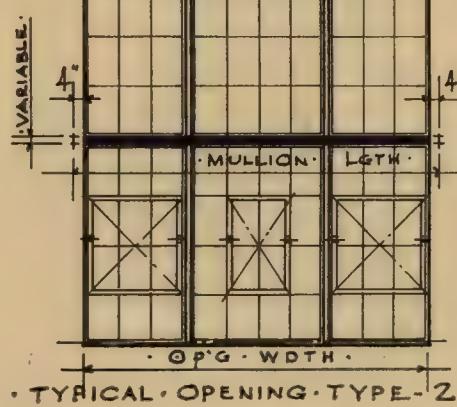
TYPE - NO 4.



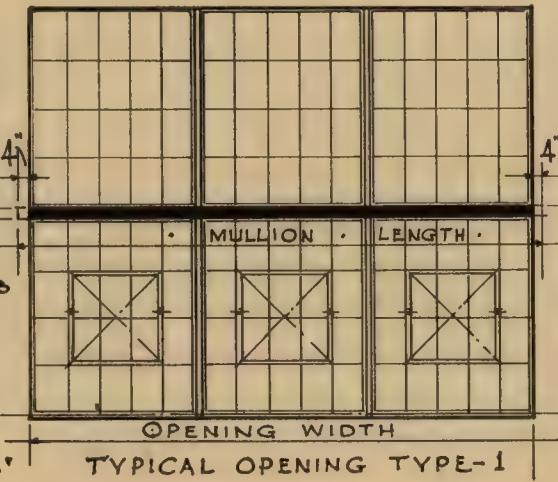
TYPICAL OPG TYPE - 4



TYPICAL OPG TYPE - 3.



TYPICAL OPENING TYPE - 2.



TYPICAL OPENING TYPE - 1

Ceco

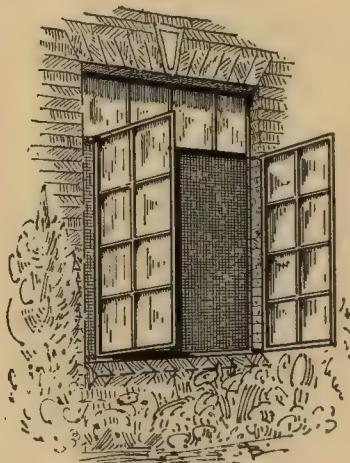
**PIVOTED WINDOWS**  
HORIZONTAL MULLION DETAILS

PLATE  
29

# CECO STEEL PRODUCTS CORPORATION

Screens for CECO Roto type casements are manufactured from a sturdy, cold rolled tubular steel frame section equipped with a removable spline which permits easy rewiring. Suitable and attractive clips are furnished which permit convenient installation. The clips are designed to effectively hold the screen flat against the casement frame which insures fly-tight contact.

Roto type hardware permits operation of casements while screen is in place. At no time is it necessary to handle screen to open, close, or lock ventilators.

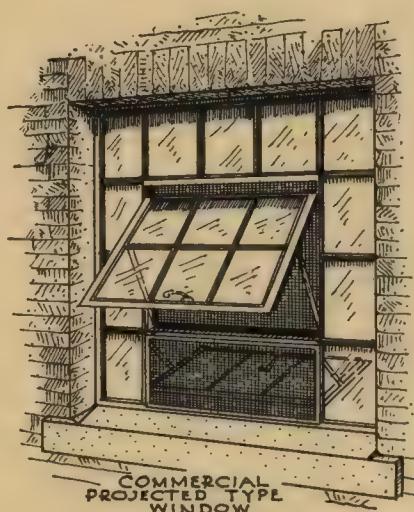


RESIDENTIAL CASEMENTS

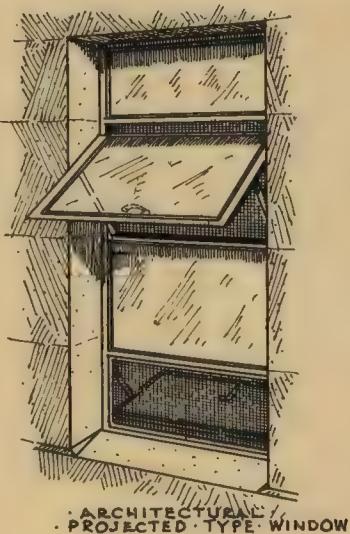
When CECO Simplex or Ceconomy Casements are used, a suitable wicket or hinged type screen is available. Screen is constructed of a ridged frame section and is provided with the necessary attachments which permit convenient installation and removal.

The wicket screen provides a horizontal sliding wicket through which the ventilators can be readily opened and closed.

Standard screen cloth is 16 mesh antique bronze. The screen frame is finished with a desirable baked on enamel.



COMMERCIAL PROJECTED TYPE WINDOW

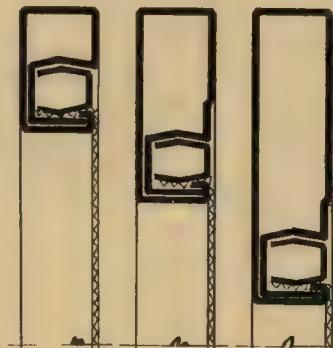


ARCHITECTURAL PROJECTED TYPE WINDOW

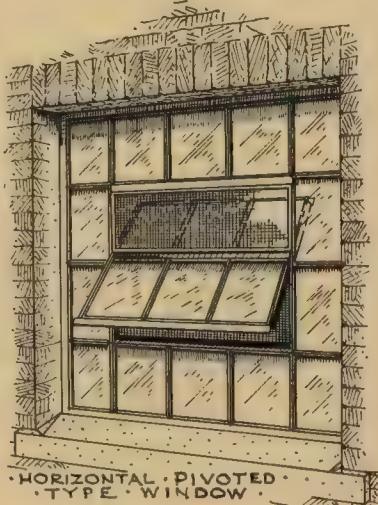
Architectural and Commercial Projected window screens cover the full ventilated window opening. The screens are attached either on the inside or outside according to the ventilator action. Fastening clips are designed to give ultimate ease in installing and removing screens. Screens placed on the outside for project in ventilator can be handled conveniently from the interior.

For project out ventilators with underscreen stay-bar operators a flat screen is furnished which permits operation of ventilator without opening the screen. With standard hardware, an easily removed top hung screen and box frame is furnished.

Screens for horizontal pivoted type windows are made in two sections with contact rolls at the pivot points permitting a flat type screen to be used. The contact rolls fit the pivoted ventilator snugly and contact the screens at all times. Clips are especially designed to permit easy installation and to fasten the screen securely to insure an insect proof opening. Screen frames are made of  $7/16'' \times 1''$  electro-galvanized tubular steel with baked on enamel.



Typical Screen Frame Sections  $5/8'', 1'', 1\frac{1}{2}''$



HORIZONTAL PIVOTED TYPE WINDOW

For complete information on screens write for catalog

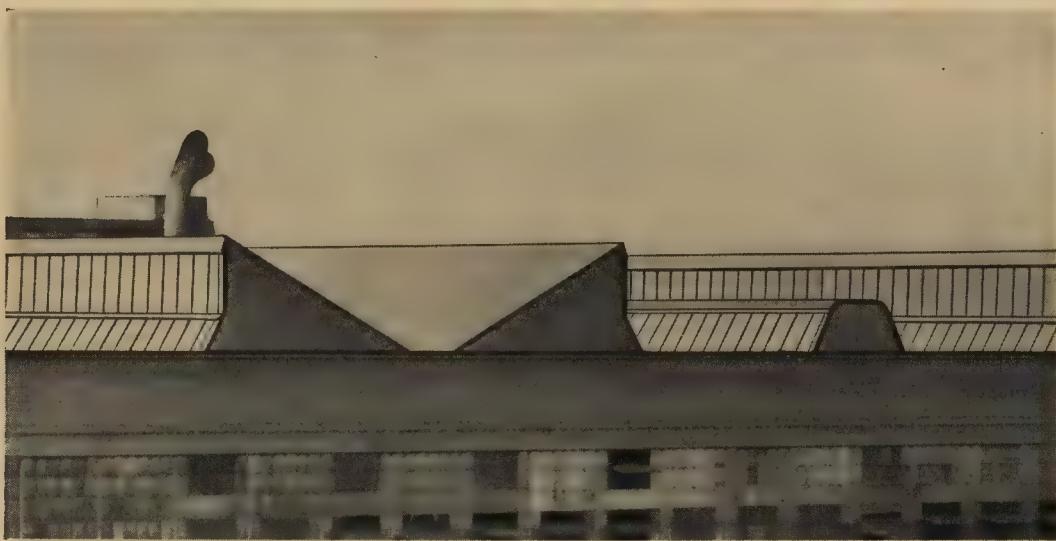
Ceco

METAL FRAME SCREENS

PLATE  
30

# CECO STEEL PRODUCTS CORPORATION

## CONTINUOUS WINDOWS



### Specifications

#### GENERAL

All windows shall be Continuous Type as manufactured by the Ceco Steel Products Corporation, of Chicago, Illinois, or approved equal, as per written approval of the architect and shall be of sizes and types as shown on architect's drawings.

(Continuous windows are generally used in monitor and saw-tooth roof construction. Continuous windows should not be set on a slope exceeding thirty degrees from vertical. They provide an easily and rapidly operated continuous window opening.)

(Note: Panels should not exceed 20' 0" in length.)

#### MATERIAL

All sections shall be especially designed, hot-rolled, new billet steel.

Panel head and end members shall be angles.

Muntins shall be  $1\frac{1}{4}'' \times 1\frac{1}{4}'' \times \frac{1}{8}''$  T's.

Sills shall be especially designed sections with a long down standing leg bent to make close contact with the building construction.

#### CONSTRUCTION

Panels shall be joined end to end with channel shaped member by means of bolting.

Muntins shall be spaced 2'0" on centers.

At the ends of all swing sections next to the building construction, there shall be provided stationary panels.

Where called for on plans, provide 2'0" wide storm panels. Storm panels shall be secured to head and sill with steel clips, and shall underlap the swing section and shall be provided at the sill with a continuous drip set over the sill flashing.

#### HARDWARE

All continuous windows shall be top hung on heavy steel butts, spaced approximately four feet on centers. Butts shall be rigidly riveted to head angle furnished with bolts for attachment to building girts.

Fixed windows shall be attached to building with heavy angle clips at head and with suitable straps at sill.

#### STRUCTURAL SUPPORT

All structural work for the support of steel windows shall be provided by another contractor.

#### ERECTION

All windows shall be erected by the Ceco Steel Products Corporation, in openings prepared by others.

All windows shall be set plumb and true, properly aligned and securely anchored before glazing.

(Note: Sheet metal flashing at head, sills and ends of runs is not furnished by the window manufacturer, and should be provided for in the Roofing and Sheet Metal Specifications.)

#### PAINTING

All windows shall be given one coat of gray mineral paint before shipment.

(Note: Include in the painting specifications that all windows should be given one additional coat after erection, but before glazing.)

(Note: Windows erected by the Ceco Steel Products Corporation will be field painted by them if specified.)

#### GLASS AND GLAZING

(Note: Glass and glazing should be furnished under glass and glazing specifications and not as part of window specifications.)

All windows shall be glazed from the outside, all glass being set in a bed of putty and secured by angle clips furnished by the window manufacturer.

Face putty shall be applied in a neat, clean-cut, smooth manner.

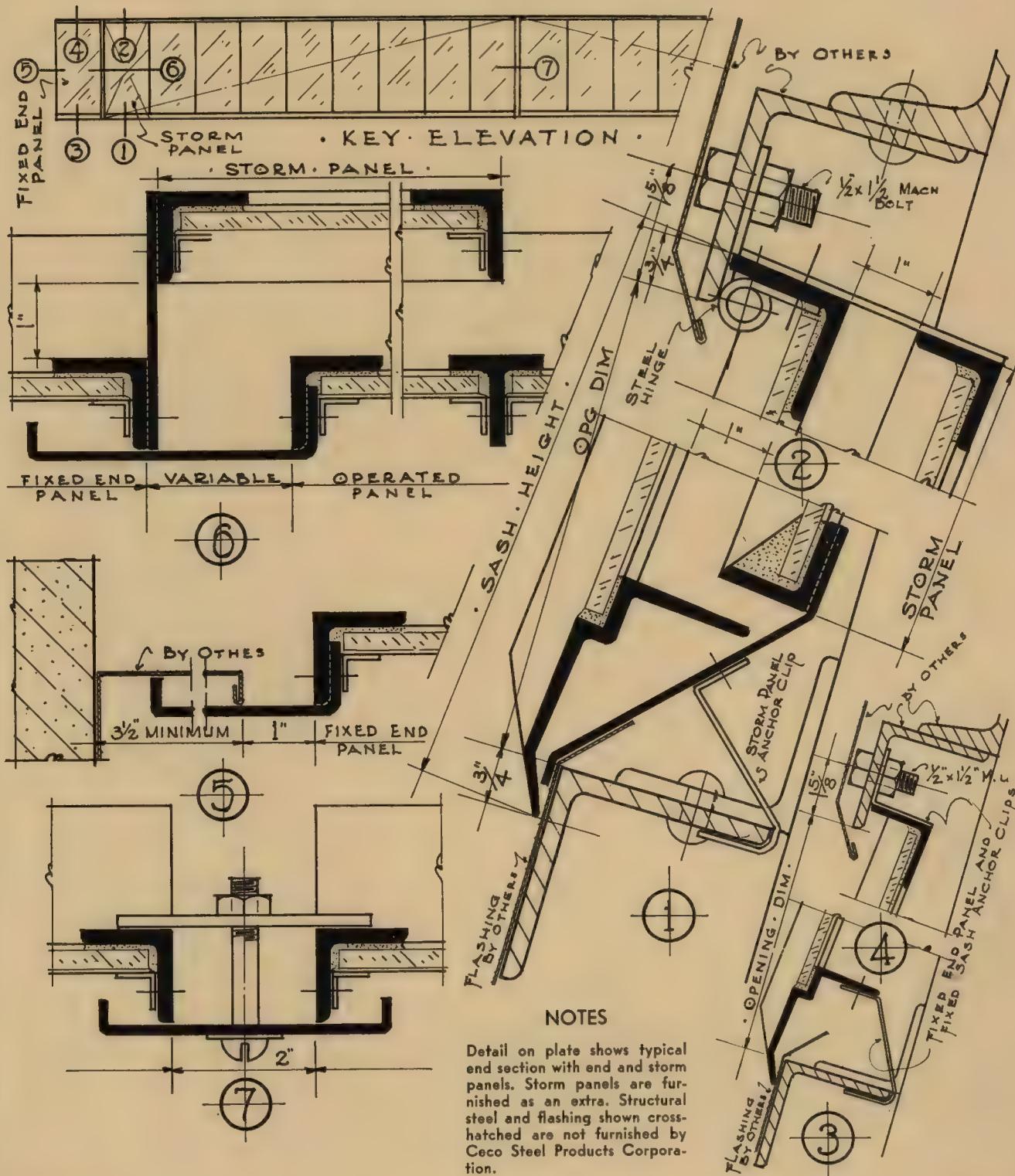
Putty shall be a high grade of steel window putty.

Glass shall be  $\frac{1}{4}''$  rough wire.

#### CONTINUOUS FIXED WINDOWS

(Note: The specifications for Continuous Fixed Windows are the same as that for Continuous Top Hung Windows, except that all window units are stationary—no swing sections. Heavy steel angle clips bolted to the window head and building girt are substituted for the butts. Steel sill clips, furnished with the window and shipped flat, are bolted to the sill of the window and bent around the steel sill girts to rigidly secure the window in position at the bottom.)

**CECO STEEL PRODUCTS CORPORATION**



## NOTES

**Detail on plate shows typical end section with end and storm panels. Storm panels are furnished as an extra. Structural steel and flashing shown cross-hatched are not furnished by Ceco Steel Products Corporation.**

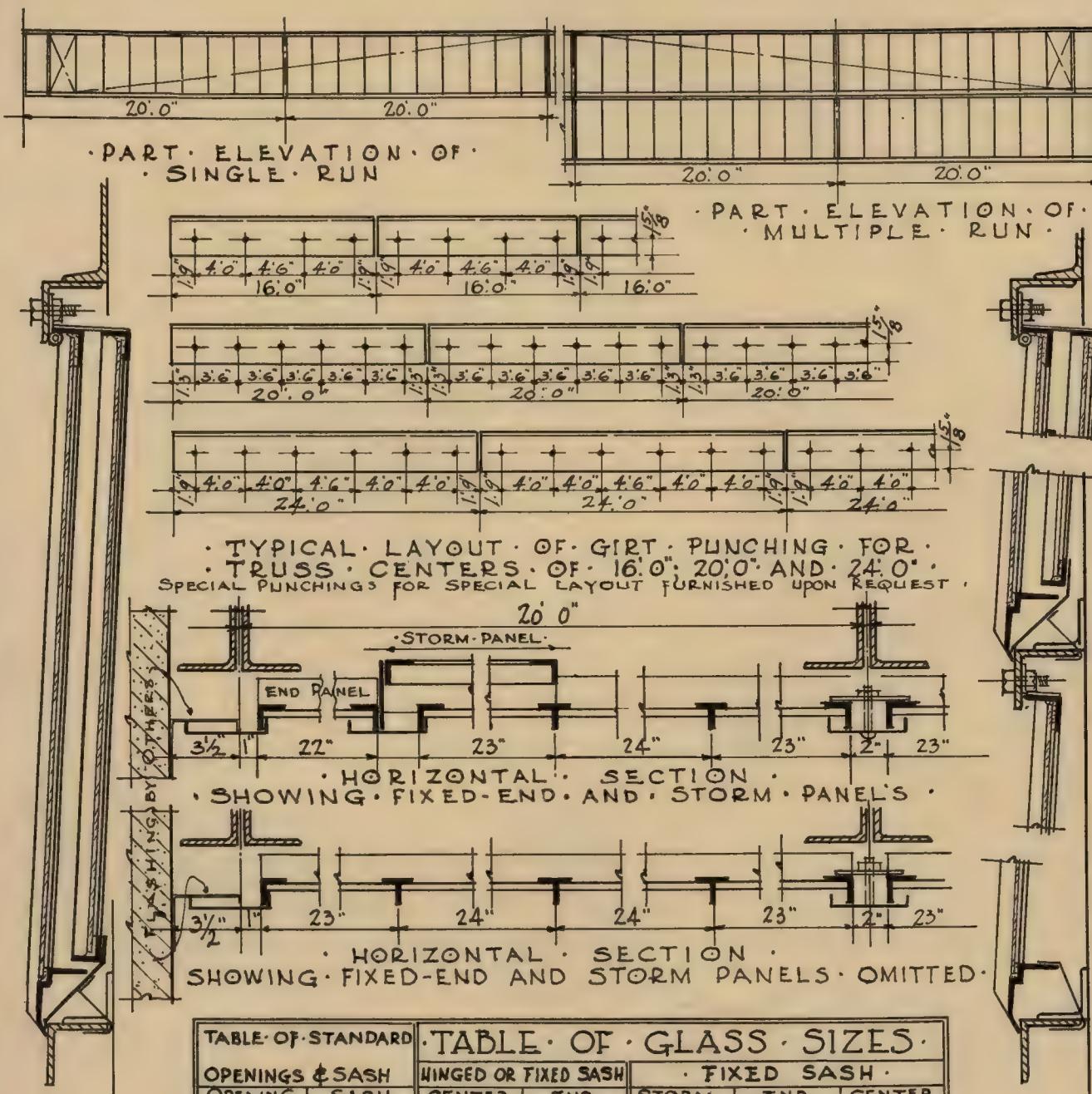
# **CONTINUOUS WINDOWS**

## **FIXED AND TOP-HUNG SASH**

*Ceco*

PLATE  
31

# CECO STEEL PRODUCTS CORPORATION



SECTION THRU  
SINGLE  
RUN

SECTION THRU  
MULTIPLE  
RUN'S

TABLE · OF · STANDARD

OPENINGS & SASH

OPENING HEIGHT	SASH HEIGHT
2' 10 1/2"	3' 0"
3' 10 1/2"	4' 0"
4' 10 1/2"	5' 0"
5' 10 1/2"	6' 0"

TABLE · OF · GLASS · SIZES ·

HINGED OR FIXED SASH

CENTER LIGHTS	END LIGHTS
23 3/8" x 32 3/4"	22 3/8" x 32 3/4"
23 3/8" x 44 3/4"	22 3/8" x 44 3/4"
23 3/8" x 56 3/4"	22 3/8" x 56 3/4"
23 3/8" x 68 3/4"	22 3/8" x 68 3/4"

FIXED SASH

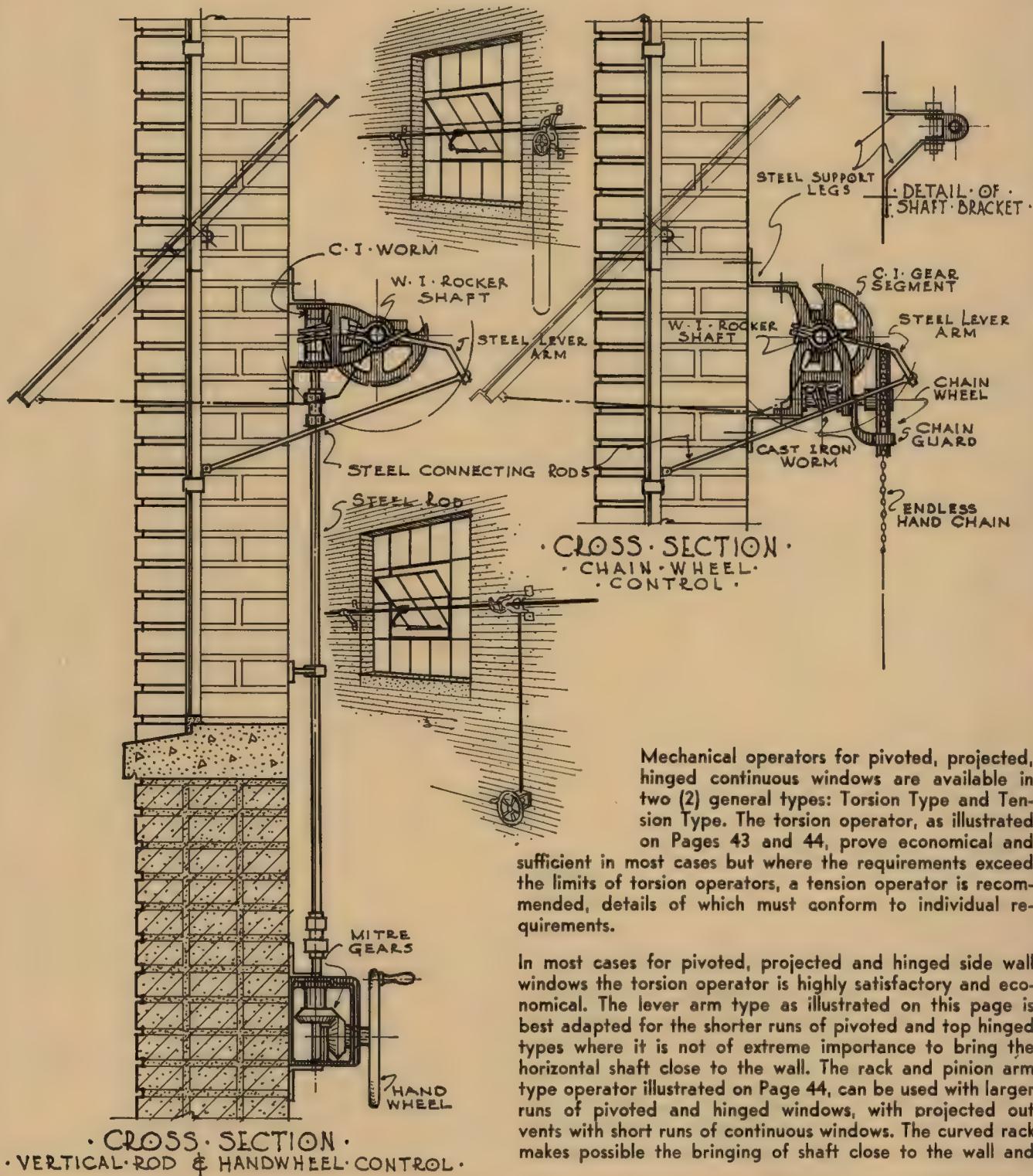
STORM PANEL	END PANEL	CENTER PANEL
24 7/8" x 28 3/4"	22 3/8" x 32 3/4"	23 3/8" x 32 3/4"
24 7/8" x 40 3/4"	22 3/8" x 44 3/4"	23 3/8" x 44 3/4"
24 7/8" x 52 3/4"	22 3/8" x 56 3/4"	23 3/8" x 56 3/4"
24 7/8" x 64 3/4"	22 3/8" x 68 3/4"	23 3/8" x 68 3/4"

Ceco

CONTINUOUS WINDOWS  
GIRT PUNCHING AND HORIZONTAL SECTIONS

PLATE  
32

# CECO STEEL PRODUCTS CORPORATION



Mechanical operators for pivoted, projected, hinged continuous windows are available in two (2) general types: Torsion Type and Tension Type. The torsion operator, as illustrated on Pages 43 and 44, prove economical and sufficient in most cases but where the requirements exceed the limits of torsion operators, a tension operator is recommended, details of which must conform to individual requirements.

In most cases for pivoted, projected and hinged side wall windows the torsion operator is highly satisfactory and economical. The lever arm type as illustrated on this page is best adapted for the shorter runs of pivoted and top hinged types where it is not of extreme importance to bring the horizontal shaft close to the wall. The rack and pinion arm type operator illustrated on Page 44, can be used with larger runs of pivoted and hinged windows, with projected out vents with short runs of continuous windows. The curved rack makes possible the bringing of shaft close to the wall and

• CROSS SECTION •

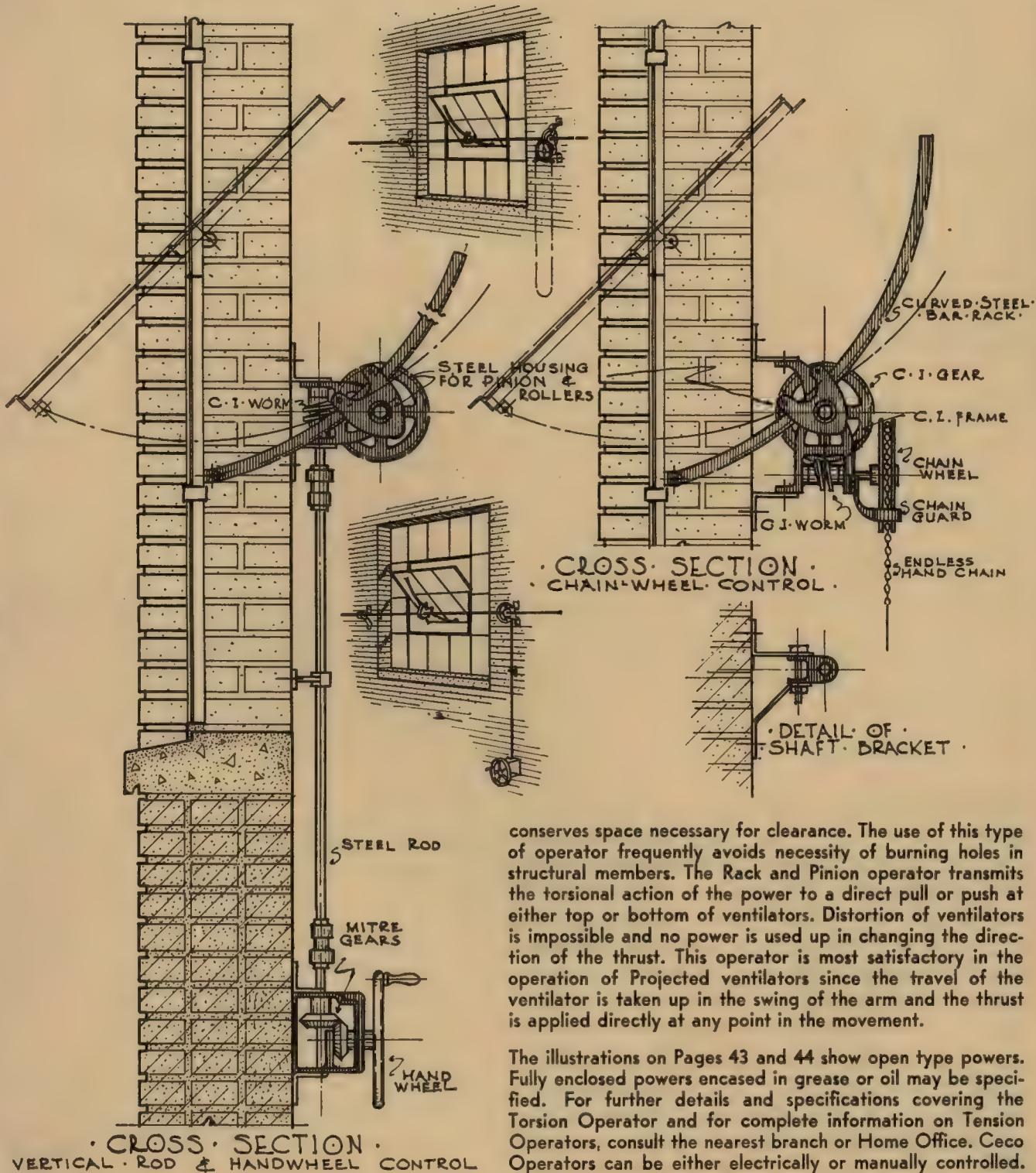
• VERTICAL ROD & HANDWHEEL CONTROL •

*Ceco*

**CECO MECHANICAL OPERATORS**  
LEVER ARM TYPE

PLATE  
33

# CECO STEEL PRODUCTS CORPORATION



conserves space necessary for clearance. The use of this type of operator frequently avoids necessity of burning holes in structural members. The Rack and Pinion operator transmits the torsional action of the power to a direct pull or push at either top or bottom of ventilators. Distortion of ventilators is impossible and no power is used up in changing the direction of the thrust. This operator is most satisfactory in the operation of Projected ventilators since the travel of the ventilator is taken up in the swing of the arm and the thrust is applied directly at any point in the movement.

The illustrations on Pages 43 and 44 show open type powers. Fully enclosed powers encased in grease or oil may be specified. For further details and specifications covering the Torsion Operator and for complete information on Tension Operators, consult the nearest branch or Home Office. Ceco Operators can be either electrically or manually controlled.

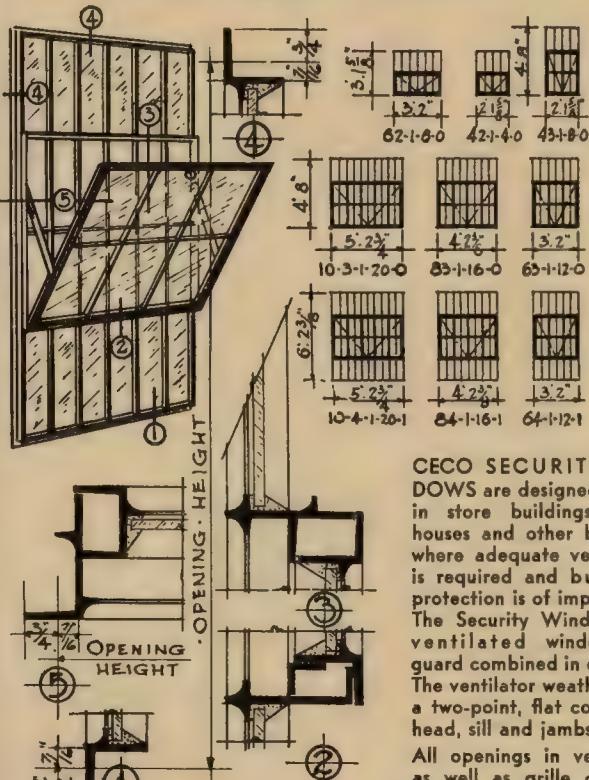
*Ceco*

**CECO MECHANICAL OPERATORS**  
RACK AND PINION ARM TYPE

PLATE  
34

# CECO STEEL PRODUCTS CORPORATION

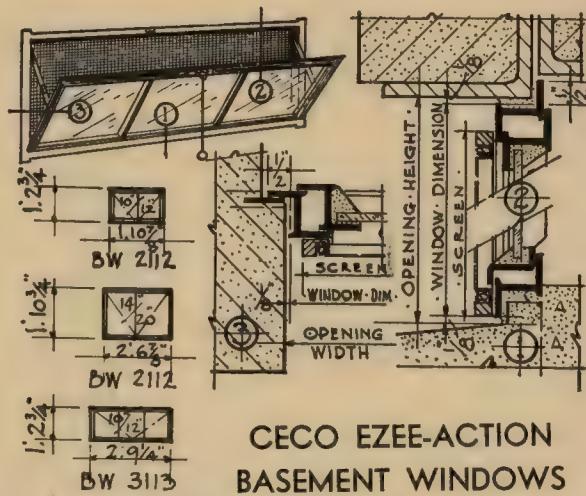
## CECO SECURITY WINDOWS



CECO SECURITY WINDOWS are designed for use in store buildings, warehouses and other buildings where adequate ventilation is required and burglary protection is of importance. The Security Window is a ventilated window and guard combined in one unit. All openings in ventilator, as well as grille openings above or below the ventilator, are to be glazed. Grille openings immediately in front of ventilator are left unglazed.

CECO SECURITY WINDOWS are designed for use in store buildings, warehouses and other buildings where adequate ventilation is required and burglary protection is of importance. The Security Window is a ventilated window and guard combined in one unit. The ventilator weathers with a two-point, flat contact at head, sill and jambs.

All openings in ventilator, as well as grille openings above or below the ventilator, are to be glazed. Grille openings immediately in front of ventilator are left unglazed.



## CECO EZEE-ACTION BASEMENT WINDOWS

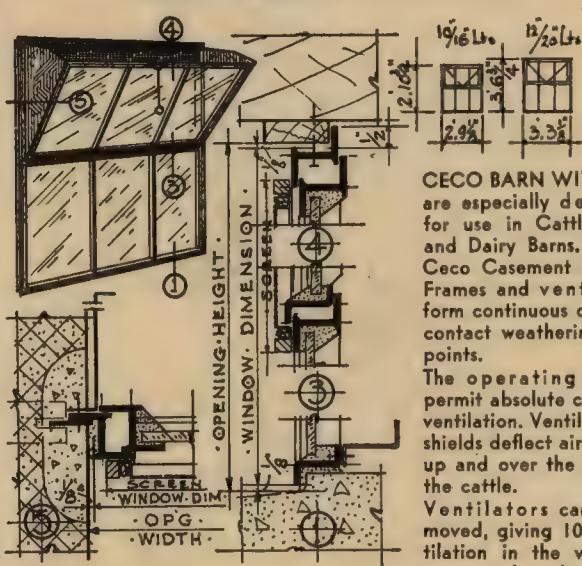
CECO EZEE-ACTION BASEMENT WINDOWS are made of identical sections used in the manufacture of Ceco Casements.

Frames and ventilators form continuous double-contact weathering at all points.

Ventilators can be partly opened for indirect ventilation or completely opened for full ventilation. Ventilator can be easily removed from the frame for glazing, if desired.

The ventilator is held securely in position by two side arms riveted to frame and is easily operated from the floor by means of rod attachment to the locking device.

## CECO BARN WINDOWS

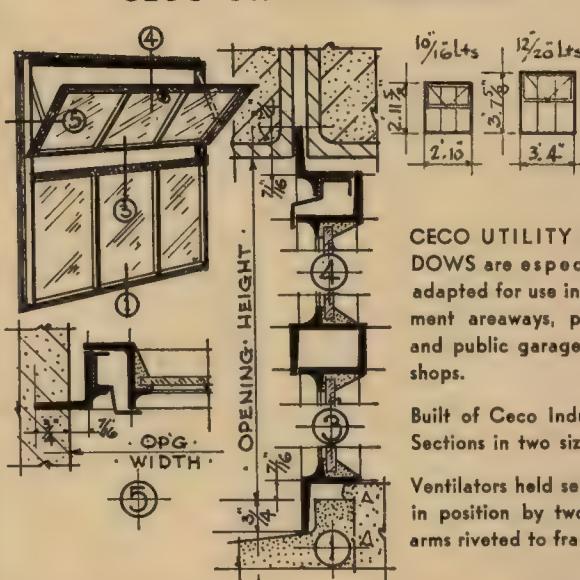


CECO BARN WINDOWS are especially designed for use in Cattle, Stock and Dairy Barns. Built of Ceco Casement Sections. Frames and ventilators form continuous double-contact weathering at all points.

The operating features permit absolute control of ventilation. Ventilator side shields deflect air currents up and over the backs of the cattle.

Ventilators can be removed, giving 100% ventilation in the ventilator portion when desired.

## CECO UTILITY WINDOWS



CECO UTILITY WINDOWS are especially adapted for use in basement areaways, private and public garages and shops.

Built of Ceco Industrial Sections in two sizes.

Ventilators held securely in position by two side arms riveted to frame.

**Ceco**

**SECURITY, BASEMENT, BARN  
AND UTILITY WINDOWS**

**PLATE  
35**

# CECO STEEL PRODUCTS CORPORATION

## INDUSTRIAL STEEL DOORS

A highly adaptable industrial door to meet many requirements. Ceco Industrial Steel Doors are designed with particular emphasis on easy operation and secure locking. In both sliding and swinging types, widths to suit structural requirements are furnished.

### Specifications

#### GENERAL

All doors shall be the Industrial type as manufactured by the Ceco Steel Products Corporation, of Chicago, Illinois, or approved equal as per written approval of the architect, and shall be of sizes and types as shown on architect's drawings.

#### MATERIAL

The stiles and rails shall be 14 gauge sheet steel to be formed and welded into  $1\frac{3}{4}$ " by  $4\frac{1}{2}$ " tubes.

Muntins and astragals shall be solid rolled steel sections.

Lower panels to be 14 gauge sheet steel.

Sash panels shall be an integral part of the door leaf, securely welded to the door rail.

#### CONSTRUCTION

Door corners shall be mitered and joints shall be welded around the entire mitre and ground smooth.

Steel panels shall be spot welded to stiles and rails.

The upper portion of the door shall be fitted with a sash panel, all members of which shall be welded in place. The glass shall be held in place with putty and glazing angles.

All double doors shall have astragals, rigidly attached to active leaf.

Doors shall be reinforced where required to eliminate any racking or sagging.

#### HARDWARE

Swing Doors—Supply Half Surface, Tight Pin, Steel Hinges.

(Note: Two hinges for each leaf are supplied for all doors up to 8' 0" high. For Doors higher than 8' 0", three hinges are supplied.)

Lever latch with iron handles and hasp for padlock shall be supplied as standard on all Single and Double-Swing Doors.

Mortise Cylinder Lock, with iron handles can be substituted for Lever Latch Hardware at slight extra cost.

(Note: Bronze Handles on both Lever Latch and Cylinder Lock Hardware are obtainable.)

Note: Cylinder Lock Hardware may be master-keyed at slight extra cost.)

One Steel Chain Bolt and one Foot Bolt shall be supplied on the inactive leaf of each double swing door.



Sliding Doors—Hardware for Sliding Doors shall consist of tracks, supporting brackets (spaced 2' 0" centers), iron handle and flush pull, hasp for padlock with necessary guides and stops.

(Note: We do not furnish padlock.)

#### DOOR FRAMES

Door frames shall be 14 gauge steel formed into specially designed  $1\frac{1}{2}$ "x4" channels with self-contained rebate.

All door frames shall extend 2" below the finished floor line for anchorage.

All door frames shall be anchored to structural steel or shall be equipped with steel anchors placed approximately 36" apart and extending into the masonry.

#### ERECTION

(Note: The Ceco Steel Products Corporation, will erect doors and frames if called for in specifications.)

#### PAINTING

The manufacturer shall give all doors and frames one coat of gray mineral paint before shipment.

(Note: Include in the Painting Specifications that all doors and frames should be given one additional coat after erection.)

(Note: Caulking shall be furnished and applied under caulking specifications and not as part of door specifications.)

#### GLASS AND GLAZING

(Note: Glass and glazing shall be furnished under glass and glazing specifications and not as part of door specifications.)

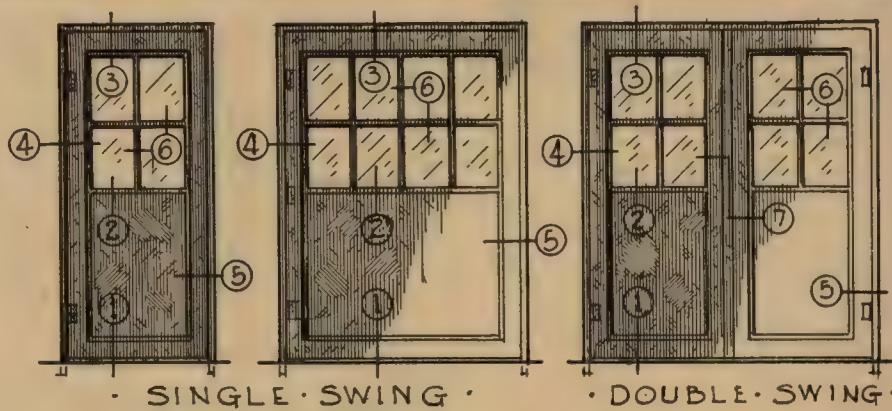
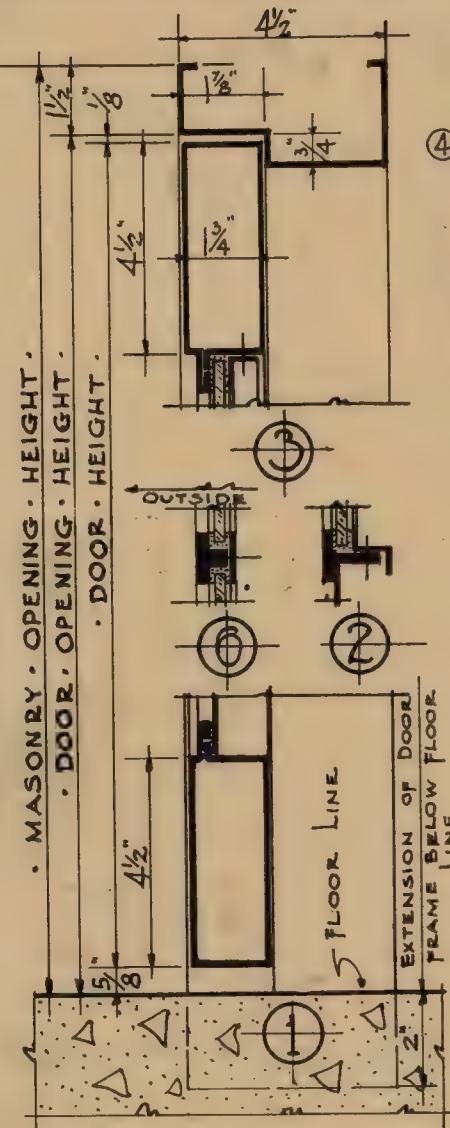
Glass shall be  $\frac{1}{4}$ " rough wire,  $\frac{1}{4}$ " factory ribbed, or  $\frac{1}{8}$ " factory ribbed.

(Note:  $\frac{1}{4}$ " glass is recommended. Single or double strength glass should not be used. Glass is not furnished by Ceco Steel Products Corporation.)

Putty shall be a high grade of steel window putty.

All glass shall be set in a bed of putty and held in place by steel glazing angles mitered at the corners.

# CECO STEEL PRODUCTS CORPORATION



## STOCK SIZES

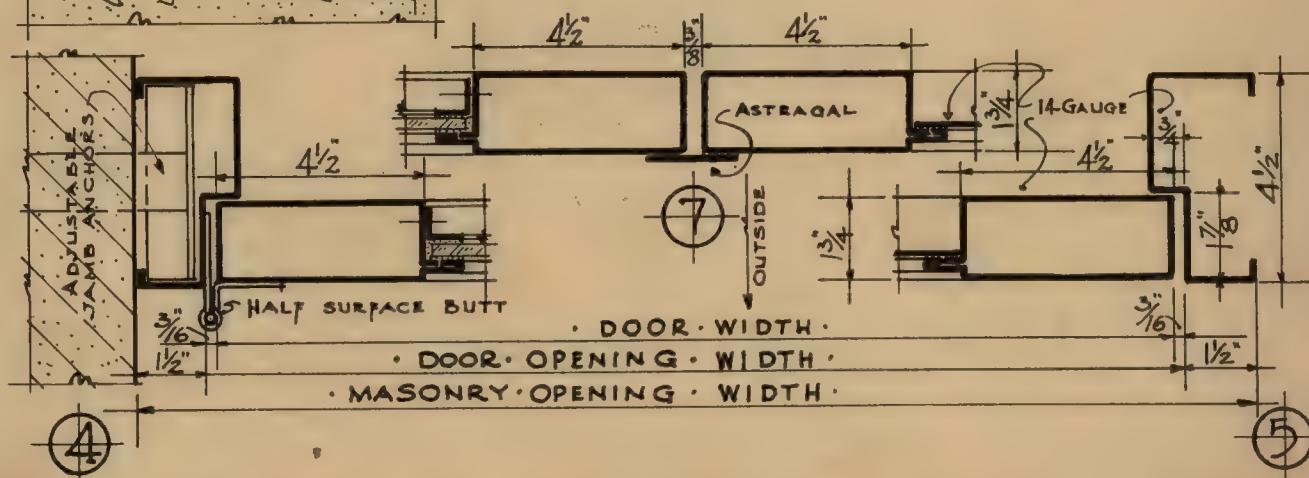
### SINGLE SWING

Door	Size of Door Width	Size of Door Height	Size of Door Opening Width	Size of Door Opening Height	Glass Size
2670	2' 5 5/8"	6' 11 1/4"	2' 6"	7' 0"	9 7/8" x 15 1/2"
3070	2' 11 5/8"	6' 11 1/4"	3' 0"	7' 0"	12 7/8" x 15 1/2"
3676	3' 5 5/8"	7' 5 1/4"	3' 6"	7' 6"	10 1/4" x 18 3/8"
4080	3' 11 5/8"	7' 11 1/4"	4' 0"	8' 0"	12 1/4" x 21 3/8"
50100	4' 11 5/8"	9' 11 1/4"	5' 0"	10' 0"	12 "x22 1/8"

### DOUBLE SWING

5070	2-2' 5 5/8"	6' 11 1/4"	5' 0"	7' 0"	9 7/8" x 15 1/2"
6070	2-2' 11 5/8"	6' 11 1/4"	6' 0"	7' 0"	12 7/8" x 15 1/2"
7076	2-3' 5 5/8"	7' 5 1/4"	7' 0"	7' 6"	10 1/4" x 18 3/8"
8080	2-3' 11 5/8"	7' 11 1/4"	8' 0"	8' 0"	12 1/4" x 21 3/8"
100100	2-4' 11 5/8"	9' 11 1/4"	10' 0"	10' 0"	12 "x22 1/8"

NOTE: Single Swing or Double Swing Doors are available as shown. All Swing Doors are shipped with hardware detached. Frames are shipped unassembled. For details of construction, see specifications.

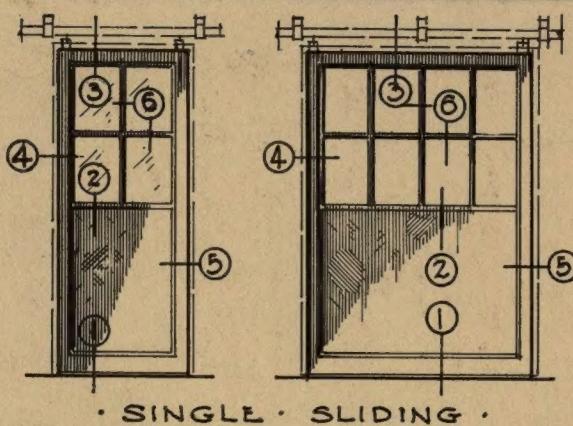
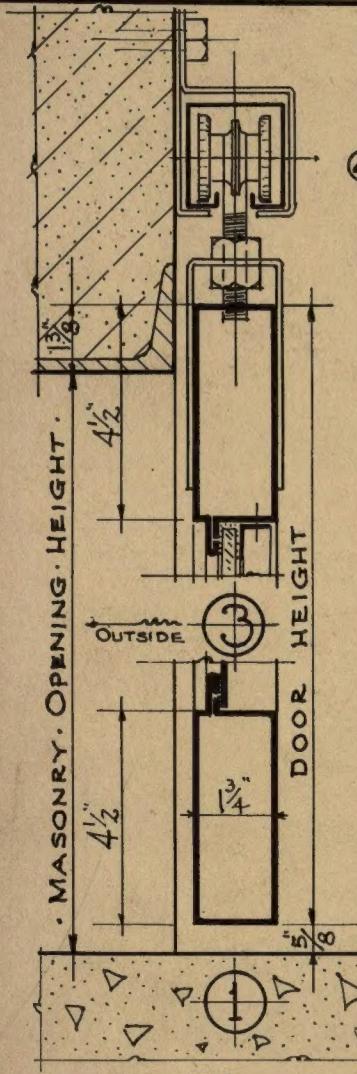


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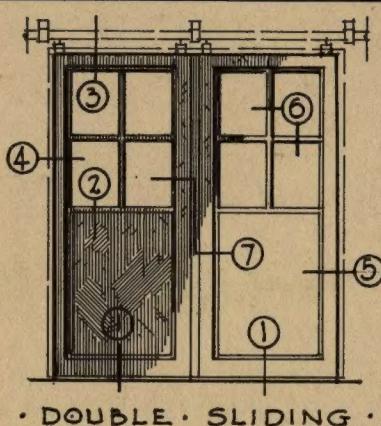
INDUSTRIAL STEEL DOORS  
SWING TYPE

PLATE  
36

# CECO STEEL PRODUCTS CORPORATION



SINGLE - SLIDING



DOUBLE - SLIDING

## STOCK SIZES

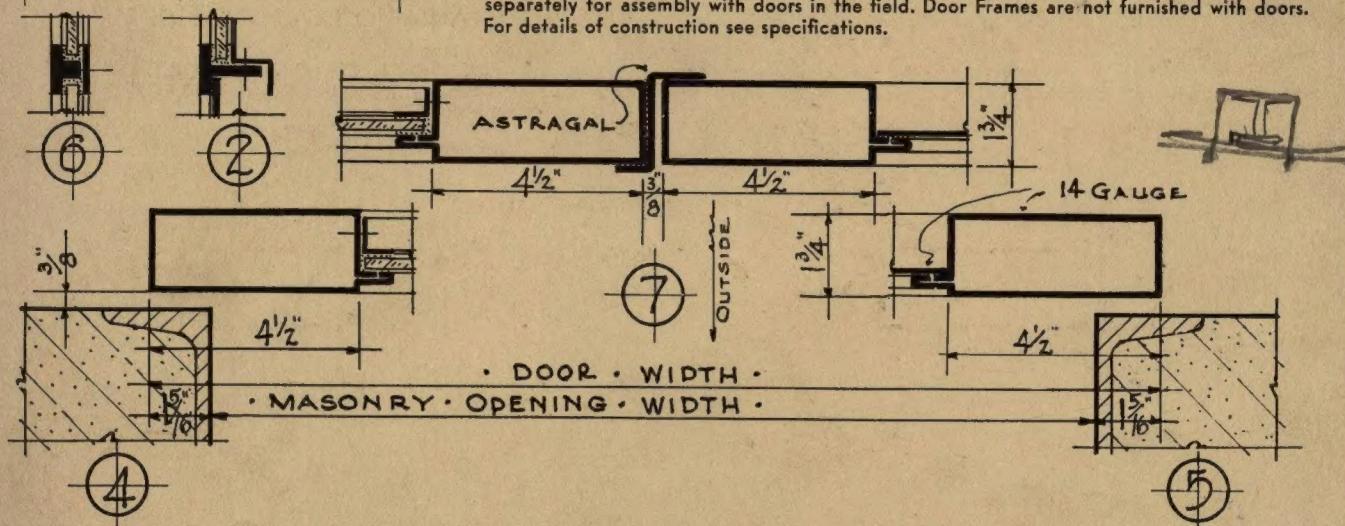
### SINGLE SLIDE

Door	Size of Door Width	Size of Door Height	Size of Opening Width	Opening Height	Glass Size
2670	2' 5 5/8"	6' 11 1/4"	2' 3"	6' 10 1/2"	9 7/8" x 15 1/2"
3070	2' 11 5/8"	6' 11 1/4"	2' 9"	6' 10 1/2"	12 7/8" x 15 1/2"
3676	3' 5 5/8"	7' 5 1/4"	3' 3"	7' 4 1/2"	10 1/4" x 18 7/8"
4080	3' 11 5/8"	7' 11 1/4"	3' 9"	7' 10 1/2"	12 1/4" x 21 3/8"
50100	4' 11 5/8"	9' 11 1/4"	4' 9"	9' 10 1/2"	12 " x 22 1/8"

### DOUBLE SLIDE

5070	2-2' 5 5/8"	6' 11 1/4"	4' 9"	6' 10 1/2"	9 7/8" x 15 1/2"
6070	2-2' 11 5/8"	6' 11 1/4"	5' 9"	6' 10 1/2"	12 7/8" x 15 1/2"
7076	2-3' 5 5/8"	7' 5 1/4"	6' 9"	7' 4 1/2"	10 1/4" x 18 7/8"
8080	2-3' 11 5/8"	7' 11 1/4"	7' 9"	7' 10 1/2"	12 1/4" x 21 3/8"
100100	2-4' 11 5/8"	9' 11 1/4"	9' 9"	9' 10 1/2"	12 " x 22 1/8"

Ceco Sliding Doors may be had single or double as shown. Sliding doors are shipped with hardware detached. Tracks, track brackets, trolley, guides, binders and stop are shipped separately for assembly with doors in the field. Door frames are not furnished with doors. For details of construction see specifications.



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INDUSTRIAL STEEL DOORS  
SLIDE TYPE

PLATE  
37

# TYPICAL CECO WINDOW INSTALLATIONS



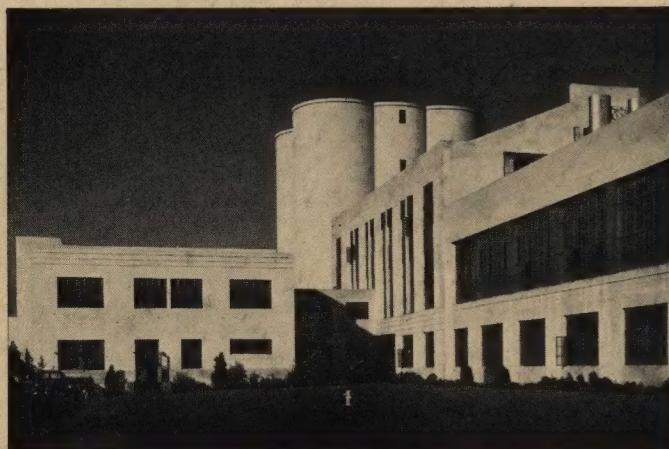
**GLADDING, McBEAN & CO. OFFICE BUILDING  
SAN FRANCISCO, CALIFORNIA**

GLADDING, McBEAN & CO.—ARCHITECT  
DINWIDDIE CONSTRUCTION CO.—CONTRACTOR

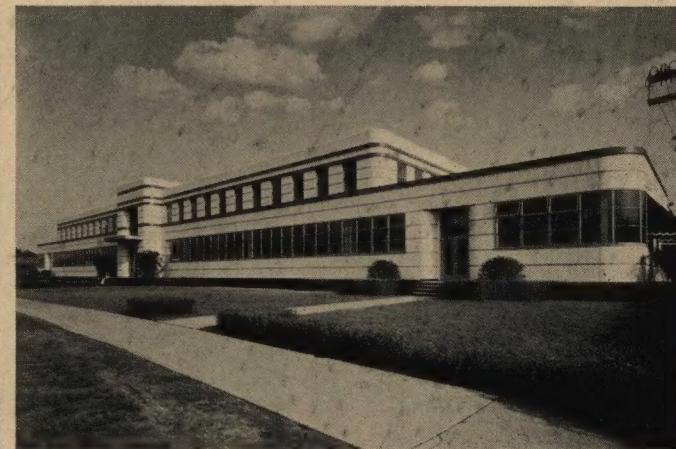


**KENMORE HOTEL  
MIAMI BEACH, FLORIDA**

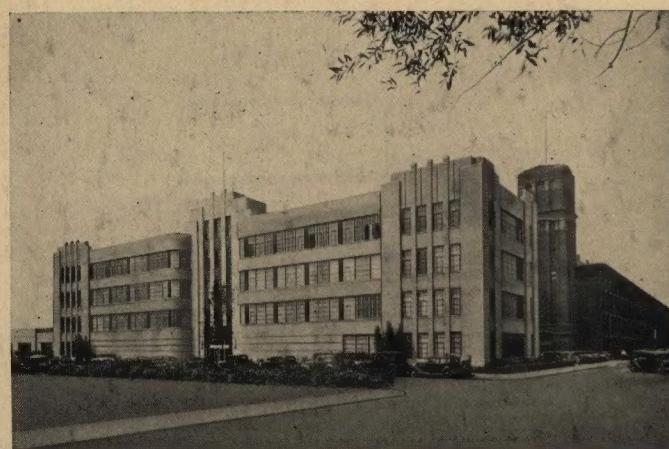
Anton Skislewicz, Architect — Richard A. Belsham, Consulting Engineer  
JAMES BETTERIDGE CO. INC.—CONTRACTOR



**SPRECKELS SUGAR CO. PLANT  
WOODLAND, CALIFORNIA**  
HARRY A. THOMSEN JR.—ARCHITECT  
DINWIDDIE CONSTRUCTION CO.—CONTRACTOR



**MOTOROLA RADIO CORPORATION BUILDING  
CHICAGO, ILLINOIS**  
VICTOR L. CHARN—ARCHITECT  
ROBERT G. REGAN CO.—CONTRACTOR



**LIQUID CARBONIC CO. ADMINISTRATION BUILDING  
CHICAGO, ILLINOIS**  
JOSEPH J. NOVY—ARCHITECT  
KAISER-DUCETT CO.—CONTRACTOR



**MAX FACTOR MAKEUP STUDIO  
HOLLYWOOD, CALIFORNIA**  
S. CHARLES LEE—ARCHITECT  
WM. SIMPSON CONSTRUCTION CO.—CONTRACTOR



